Control Arm Replacement

Tools Required

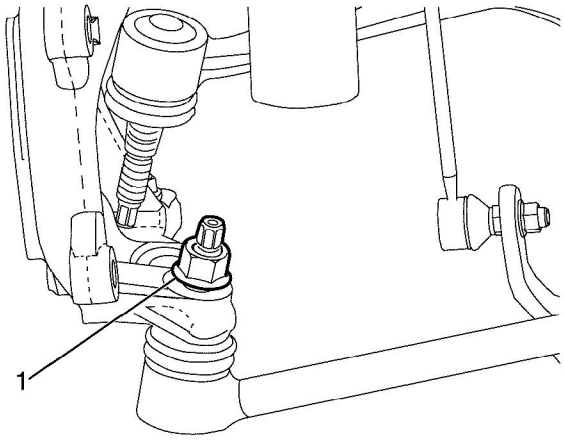
- J-42188-B .
- E7115 .

Removal Procedure

Warning: Refer to Safety Glasses Warning in the Preface section.

Danger: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the front wheel. Refer to Tire and Wheel Removal and Installation.



3. Loosen the control arm to steering knuckle retaining nut (1) about two turns.

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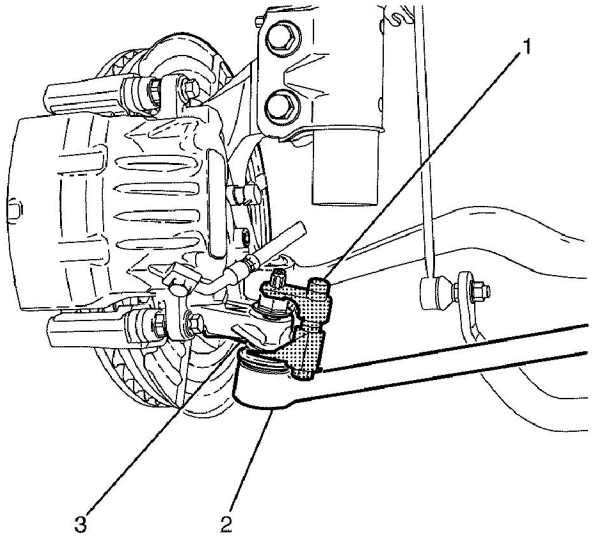
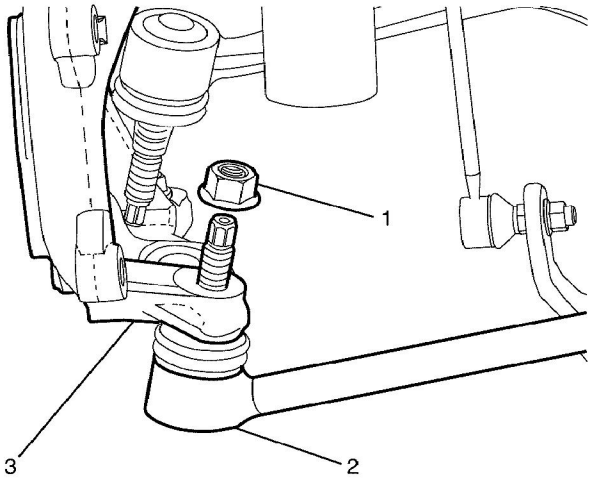
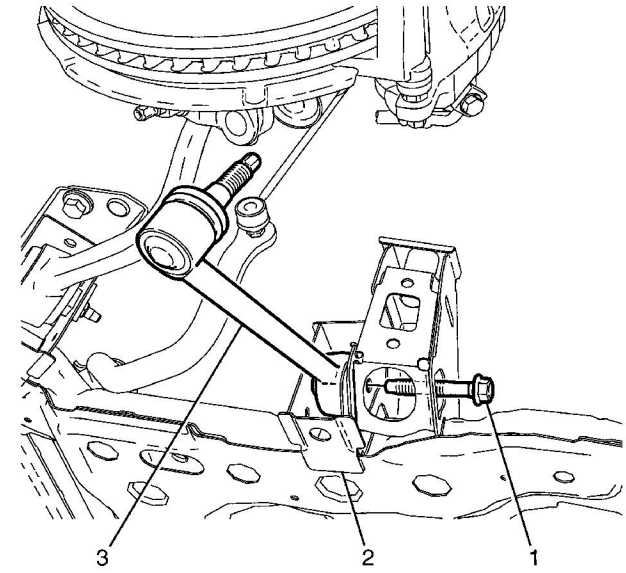


4. Using J-42188-B (1) disconnect the control arm (2) from the steering knuckle (3).

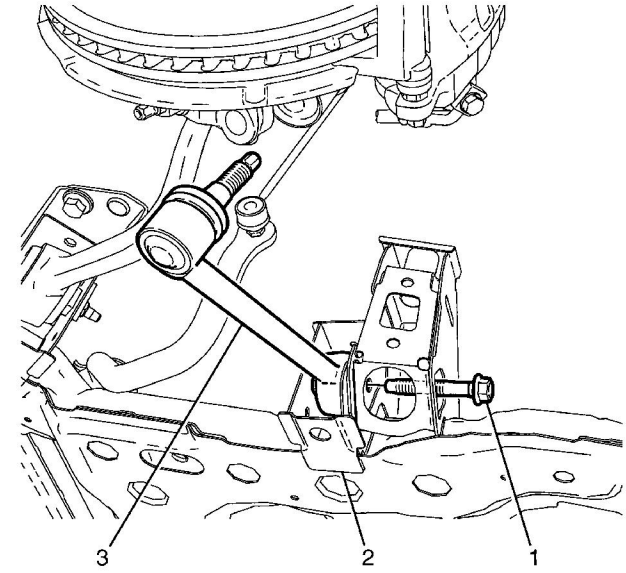


5. Remove and discard the control arm to steering knuckle retaining nut (1).
6. Separate the control arm (2) from the steering knuckle (3).



7. Remove and discard the control arm to subframe retaining bolt (1).
8. Remove the front control arm (3) from the subframe (2).

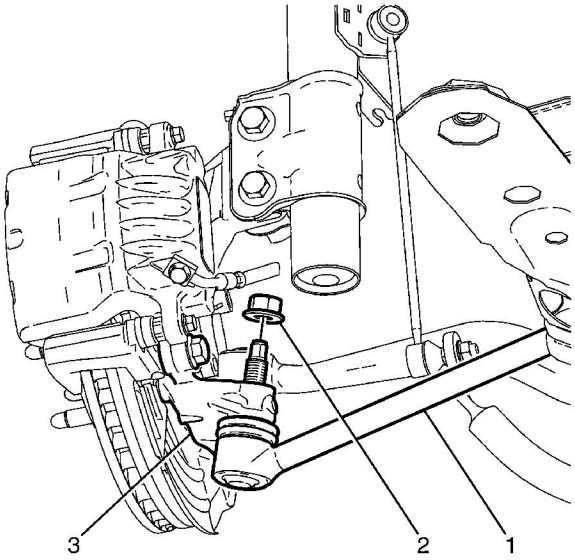
Installation Procedure



1. Install the front control arm (3) to the subframe (2).

   Note: The NEW front control arm to subframe retaining bolt (1) must not be fully tightened at this stage.

2. Install the NEW front control arm to subframe retaining bolt (1).



3. Install the front control arm (1) to the steering knuckle (3).

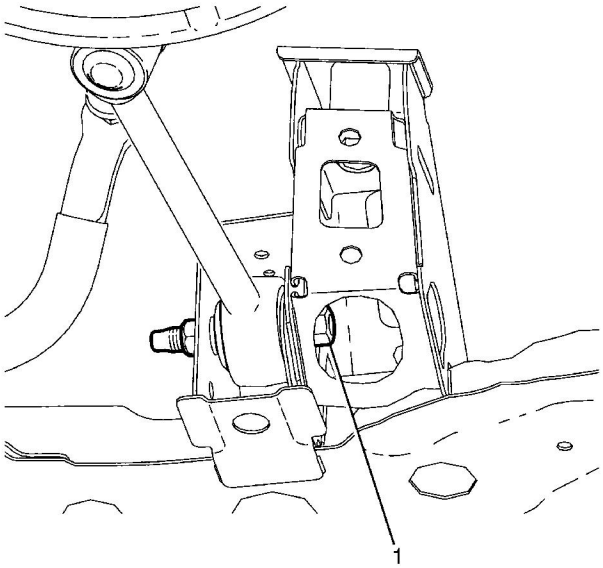
Caution: Refer to Fastener Caution in the Preface section.

4. Install the NEW control arm to steering knuckle retaining nut (2).

Tighten

- First Pass: Tighten the nut to 40 N·m (30 lb ft)
- Final Pass: Tighten the nut an additional 60 degrees using E7115 .

5. Install the front wheel. Refer to Tire and Wheel Removal and Installation.
6. Lower the vehicle.



7. Bounce the vehicle several times to settle the suspension.

8. Check and adjust the wheel alignment. Refer to Wheel Alignment Measurement.
9. Tighten the NEW control arm to subframe retaining bolt (1).

Tighten

- First Pass: Tighten the nut to 50 N·m (30 lb ft).
- Final Pass: Tighten the nut an additional 120 degrees using E7115

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Brake Caliper Anchor Plate Retaining Bolts		
First Pass	80 N·m	63 lb ft
Final Pass	45 Degrees	
Caster Arm to Steering Knuckle Retaining Nut		
First Pass	40 N·m	30 lb ft
Final Pass	60 Degrees	
Caster Arm to Sub Frame Retaining Bolt		
First Pass	50 N·m	37 lb ft
Final Pass	120 Degrees	
Front Brake Disc Splash Shield to Steering Knuckle Retaining Bolts	9 N·m	80 lb in
Front Caster Arm Ball Joint Retaining Nut		
First Pass	40 N·m	30 lb ft
Final Pass	60 Degrees	
Front Caster Arm Inner Pivot Retaining Bolt and Nut		
First Pass	50 N·m	37 lb ft
Final Pass	120 Degrees	
Front Subframe to Body Centre Retaining Bolts	160 N·m	118 lb ft
Front Subframe to Body Front Retaining Bolts	160 N·m	118 lb ft
Front Subframe to Body Rear Retaining Bolts	240 N·m	178 lb ft
Front Wheel Hub Assembly to Steering Knuckle Retaining Bolts	108 N·m	80 lb ft
Lower Control Arm Ball Joint Retaining Nut		
First Pass	40 N·m	30 lb ft
Final Pass	60 Degrees	
Lower Control Arm Inner Retaining Bolt		
First Pass	50 N·m	37 lb ft
Final Pass	120 Degrees	
Power Steering Gear Inlet Pipe/Hose Bracket to Sub Frame Retaining Bolt	9 N·m	80 lb in
Power Steering Gear Outlet Pipe/Hose Bracket to Sub Frame Retaining Bolt	9 N·m	80 lb in
Stabiliser Bar Link Ball Joint Stud Retaining Nuts	50 N·m	37 lb ft
Stabiliser Bar Support Bracket Retaining Nuts	22 N·m	16 lb ft
Steering Knuckle to Strut Assembly Retaining Bolts		
First Pass	85 N·m	63 lb ft
Second Pass	100 N·m	74 lb ft
Final Pass	90 Degrees	
Strut Assembly Retaining Nut	75 N·m	55 lb ft

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Strut Assembly to Body Retaining Nut	55 N·m	41 lb ft
Tie Rod to Steering Knuckle Retaining Nut	70 N·m	52 lb ft

Front Spring Specifications

Number of Coils	Free Length		Main Body Inside Diameter		Spring Rate		Production I.D Code
5.1	358 mm	14.09 in	146 mm	5.75 in	23 - 26 N/mm	131 - 148 lb/in	AVB

Front Stabiliser Bar Specifications

Diameter mm (in)	Production I.D Code
23 mm (9.05 in)	XJ

Front Strut Unit Specifications

Left Side I.D Code	Right Side I.D Code
AB	AA

Front Coil Springs Replacement

Special Tools

CH-48845 Spring Compressor

Removal Procedure

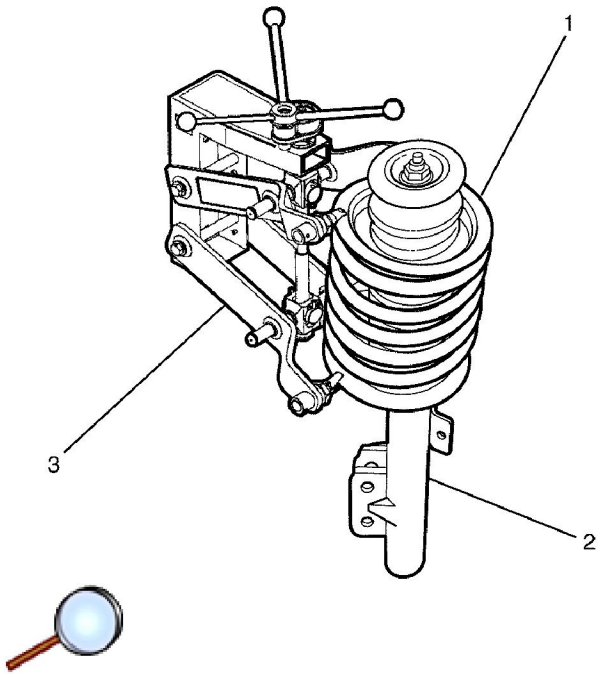
1. Ignition OFF.

   Danger: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

2. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle in Preface.

   Warning: Refer to Safety Glasses Warning in the Preface section.

3. Remove the front wheel. Refer to Tire and Wheel Removal and Installation.
4. Remove the front strut assembly. Refer to Strut Assembly Replacement.



5. Support the front strut assembly (2) in a suitable device.

   Warning: Use only the CH-48845 Spring Compressor when servicing suspension components on this vehicle. Other tools may not be strong enough for the springs on this vehicle and you could be injured if you do not use Special Tool CH-48845. Failure to do so could result in serious personal injury.

   Note: Observe the operating instructions of CH-48845 (2).

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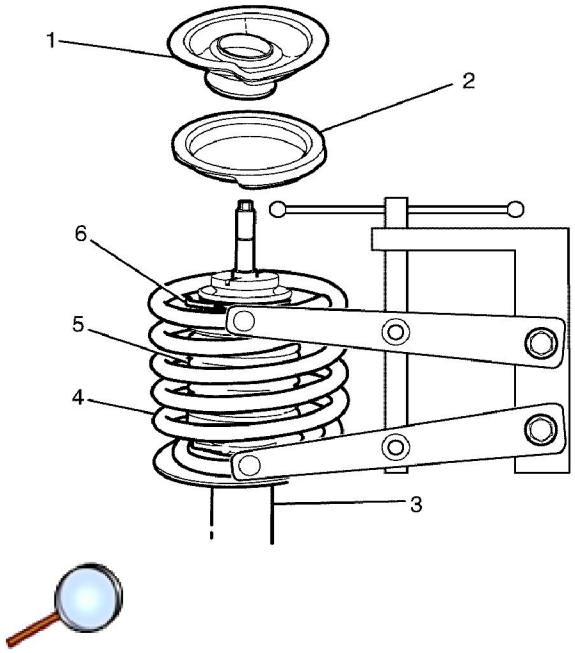
Note: Only use hand tools to perform the following service procedure.

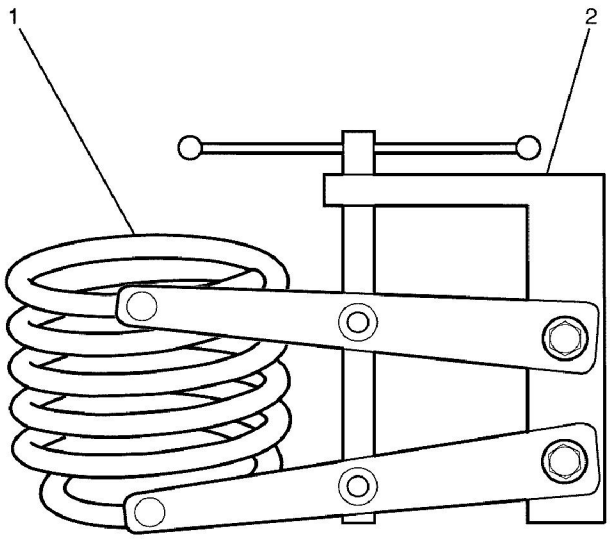
6. Install the CH-48845 (2) to the coil spring (1).

Warning: Do not over compress the spring. Severe overloading may cause tool failure which could result in bodily injury.

7. Compress the coil spring (1) using CH-48845 (3) until the front strut assembly (3) is free from the spring tension of the coil spring (1).
8. Remove the front strut assembly support bearing and mount. Refer to Front Suspension Strut Mount and Bearing Replacement.

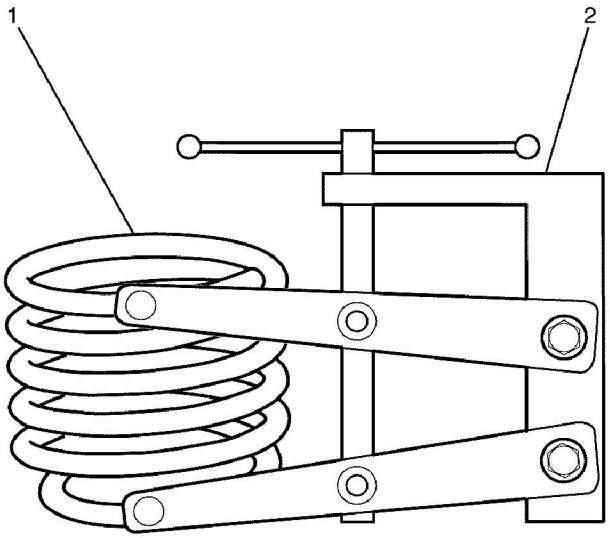


9. Remove the dust boot upper retaining clamp (6).
10. Discard the clamp (6).
11. Detach and remove the coil spring seat (1) from the dust boot (5).
12. Remove the coil spring insulator (2)
13. Remove the coil spring (4) from the front strut assembly (3).



14. Release the CH-48845 (2) from the coil spring (1).

Installation Procedure

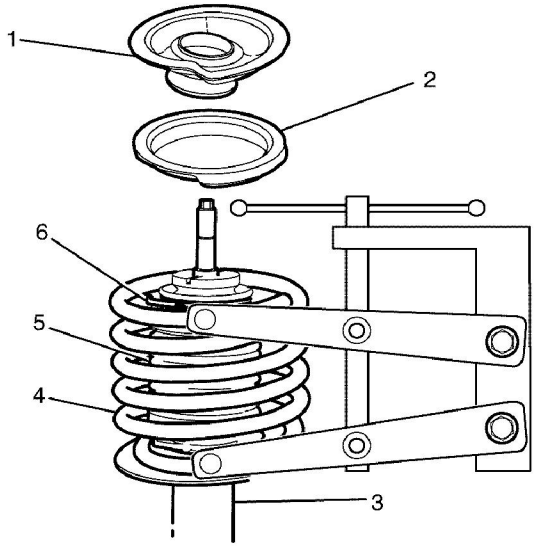


Note: Observe the operating instructions of CH-48845 (2).

1. Install the CH-48845 (2) to the NEW coil spring (1).

Warning: Do not over compress the spring. Severe overloading may cause tool failure which could result in bodily injury.

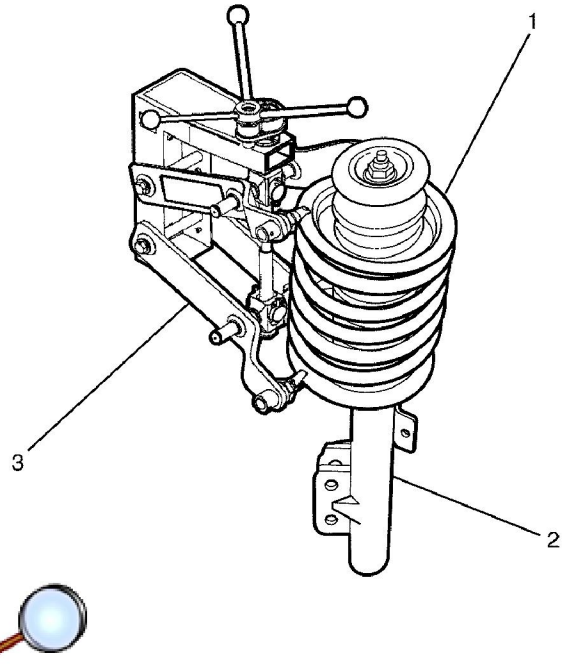
2. Compress the NEW coil spring (1) with CH-48845 (2).



3. Install the NEW coil spring (4) to the front strut assembly (3).

Note: The coil spring insulator (2) and coil spring seat (1) have a step which locates on to the straight projecting end of the spring. The step must be correctly orientated in relation to the spring.

4. Install the NEW coil spring insulator (2).
5. Install the coil spring seat (1)
6. Position the dust boot (5) to the coil spring seat (1).
7. Install a new dust boot upper retaining clamp (6).
8. Install the front strut assembly support bearing and mount. Refer to Front Suspension Strut Mount and Bearing Replacement.



9. Make sure that the coil spring (1) is correctly positioned to the front strut assembly (2).

10. Release the CH-48845 (3) from the coil spring (1).
11. Install the front strut assembly. Refer to Strut Assembly Replacement.
12. Install the front wheel. Refer to Tire and Wheel Removal and Installation
13. Lower the vehicle to the ground.

Front Lower Control Arm Bushing Replacement

Special Tools

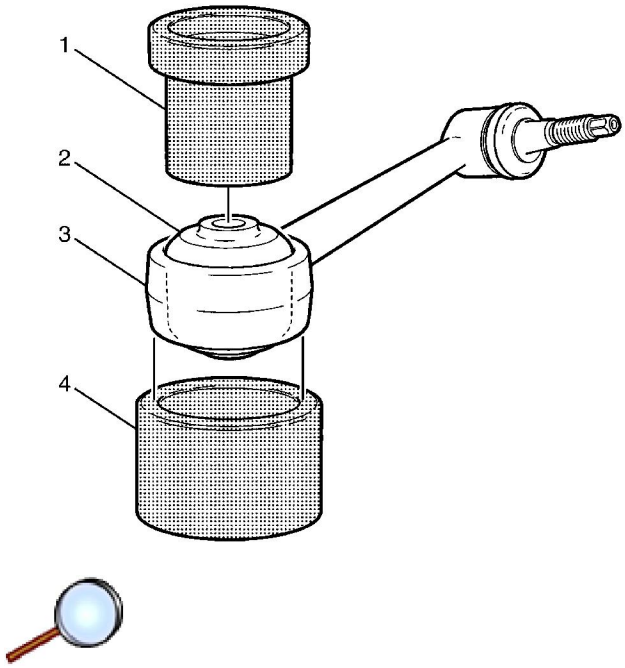
- KM-619 Front Control Arm Bush Remover/Installer.
- CH-48510 Front Control Arm Bush Support Sleeve.

Removal Procedure

Warning: Refer to Safety Glasses Warning in the Preface section.

Danger: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the front wheel. Refer to Tire and Wheel Removal and Installation.
3. Remove the front control arm. Refer to Control Arm Replacement.



Note: The bushing must be lubricated with soapy water solution to ease the removal process.

Note: It is recommended to observe the orientation and depth of the bushing with reference to the original position. Adhering to this recommendation will minimise the potential of incorrect bush installation.

4. Remove the front control arm bushing (2) from the front control arm (3) using the KM-619 (1) and CH-48510 (4).

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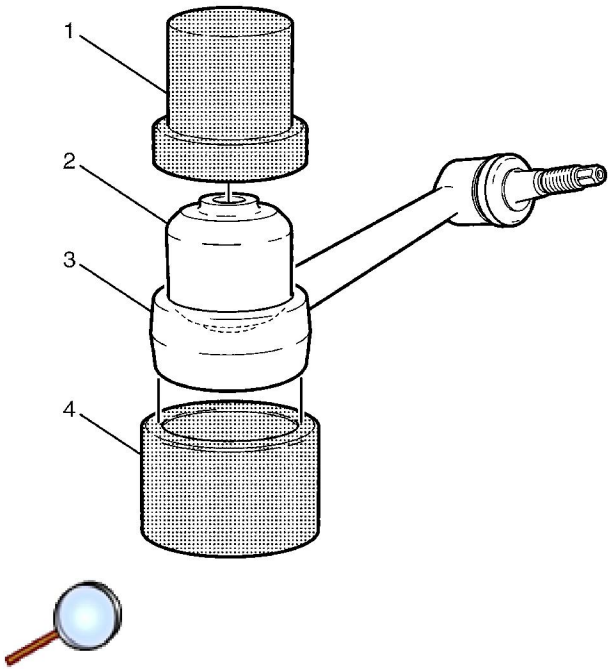
5. Inspect front control arm for wear and damage.

Installation Procedure



Note: The bushing must be lubricated with soapy water solution to ease the installation process.

Note: Before installing, the bushing must be properly aligned and orientated. The depth to which the bushing is going to travel must also be observed and maintained.

1. Using the KM-619 (1) and CH-48510 (4), install the NEW bushing (2) to the front control arm (3).
2. Install the front control arm. Refer to Control Arm Replacement.
3. Install the front wheel. Refer to Tire and Wheel Removal and Installation.
4. Remove the safety stands.
5. Lower the vehicle to the ground.

Front Lower Control Arm Front Bushing Replacement

Special Tools

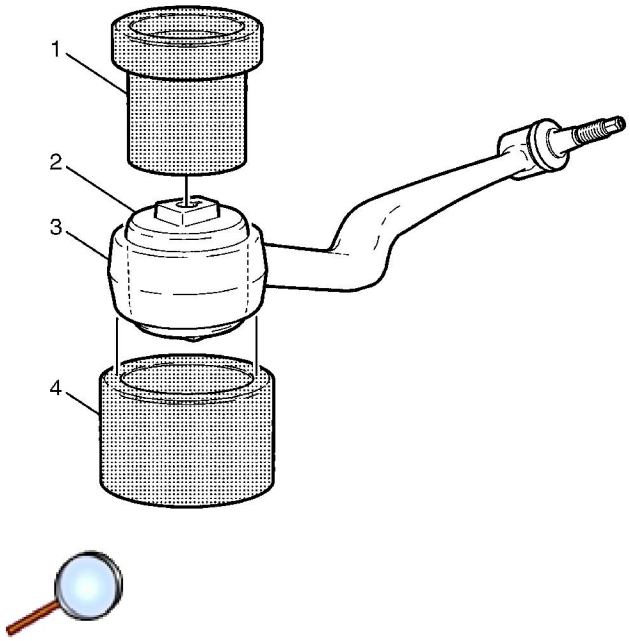
- KM-619 Front Control Arm Bush Remover/Installer.
- CH-48510 Front Control Arm Bushing Support Sleeve.

Removal Procedure

Warning: Refer to Safety Glasses Warning in the Preface section.

Danger: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the front wheel. Refer to Tire and Wheel Removal and Installation.
3. Remove the front caster arm. Refer to Front Lower Control Front Arm Replacement.



Note: The bushing must be lubricated with soapy water solution to ease the removal process.

Note: It is recommended to observe the orientation and the depth of the bushing with reference to the original position. Adhering to this recommendation will minimize the potential of incorrect bush installation.

4. Remove the front caster arm bushing (2) from the front caster arm (3) using the KM-619 (1) and CH-48510 (4).

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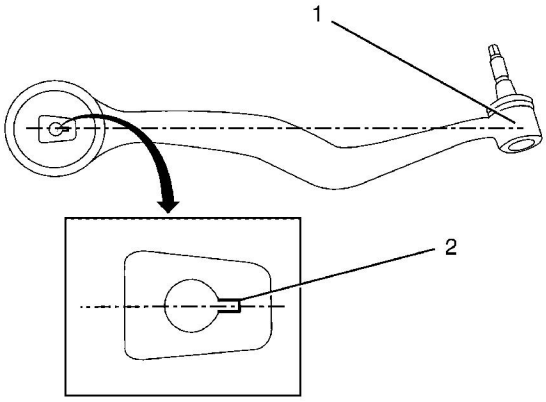
5. Inspect the front caster arm (3) for damage.

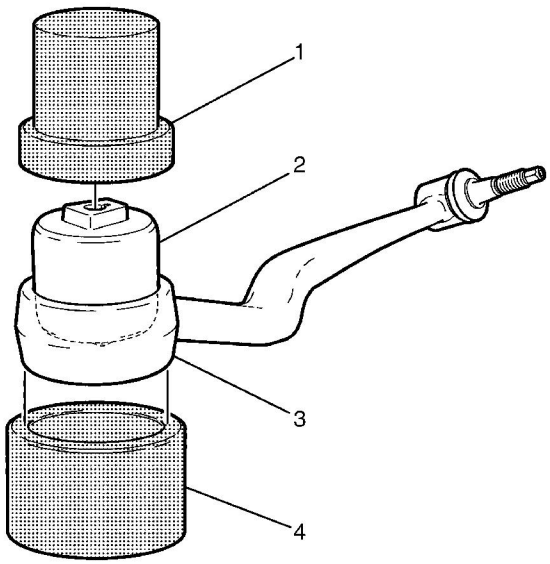
Installation Procedure



Note: The bushing must be lubricated with soapy water solution to ease the installation process.

Note: Before installing, the bushing must be properly aligned and orientated. The depth to which the bushing is going to travel must also be observed and maintained.

1. Position the front caster arm bushing so that the cut out (2) aligns with the ball joint (1).



2. Using the KM-619 (1) and CH-48510 (4), install the NEW front caster arm bushing (2) to the front caster arm (3).
3. Install the front caster arm. Refer to Front Lower Control Front Arm Replacement.
4. Install the front wheel. Refer to Tire and Wheel Removal and Installation.
5. Remove the safety stands.
6. Lower the vehicle to the ground.

Front Lower Control Front Arm Replacement

Tools Required

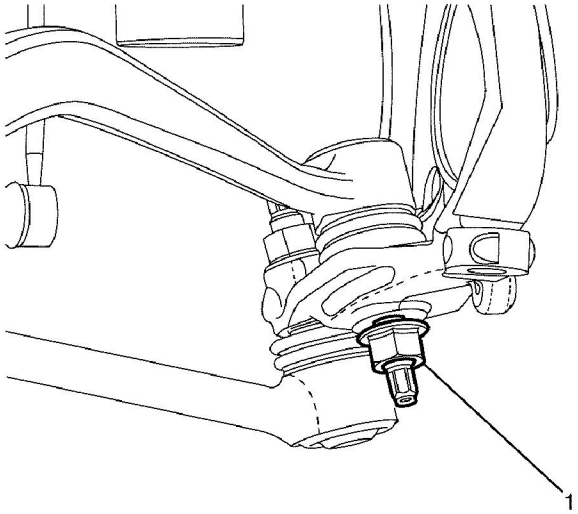
- J-42188-B .
- E7115 .

Removal Procedure

Warning: Refer to Safety Glasses Warning in the Preface section.

Danger: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the front wheel. Refer to Tire and Wheel Removal and Installation.



3. Loosen the caster arm to steering knuckle retaining nut (1) about two turns.

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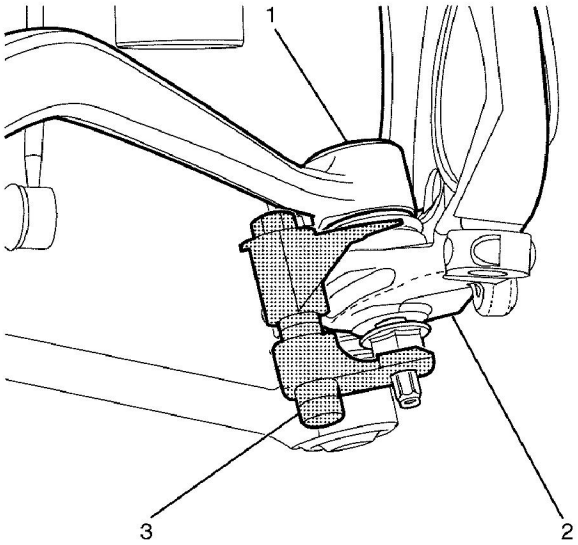
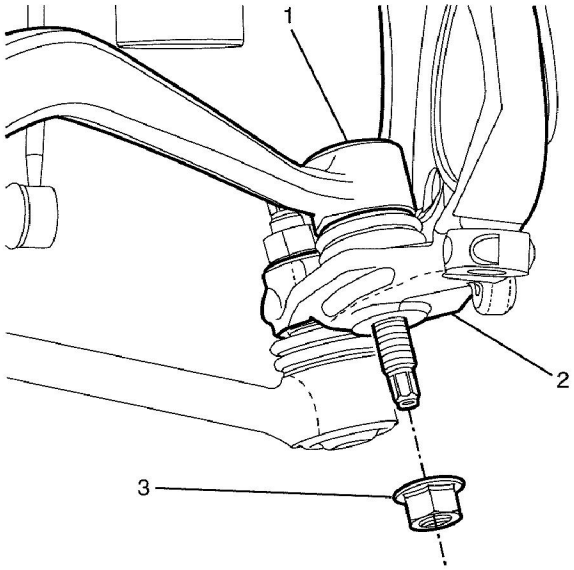
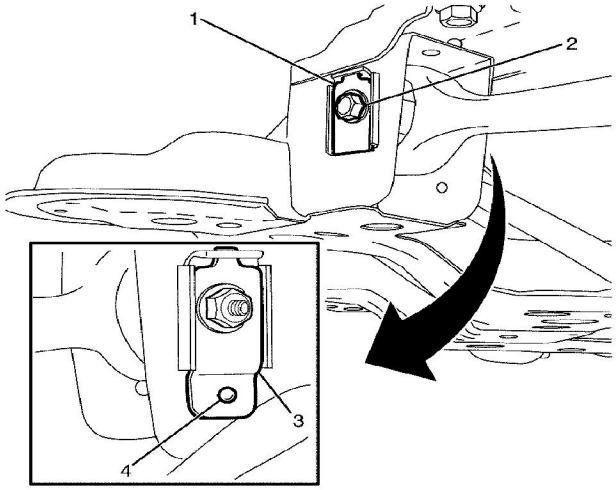


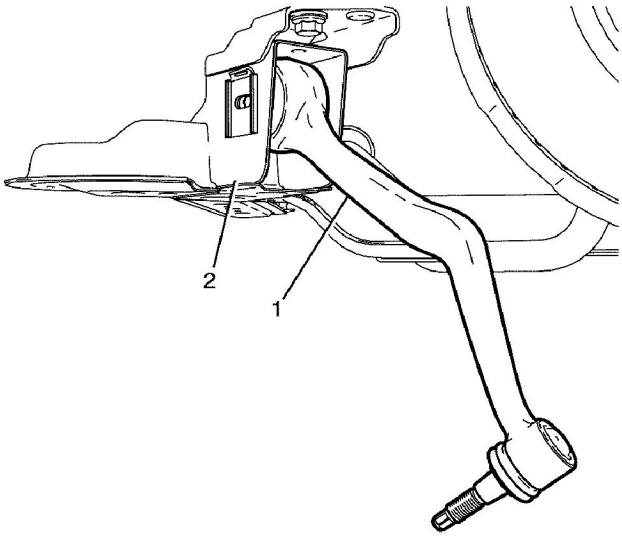
4. Using J-42188-B (1) disconnect the caster arm (1) from the steering knuckle (2).



5. Remove and discard the caster arm to steering knuckle retaining nut (3).
6. Separate the caster arm (1) from the steering knuckle (2).

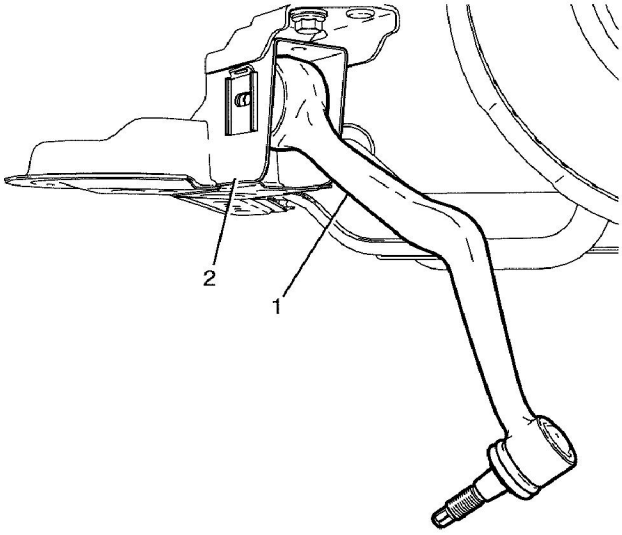


7. Remove and discard the caster arm to subframe retaining bolt (2).
8. Remove the offset washer (1).
9. Remove the end plate with encapsulated retaining nut to subframe retainer (4).
10. Remove and discard the end plate with encapsulated retaining nut (3).

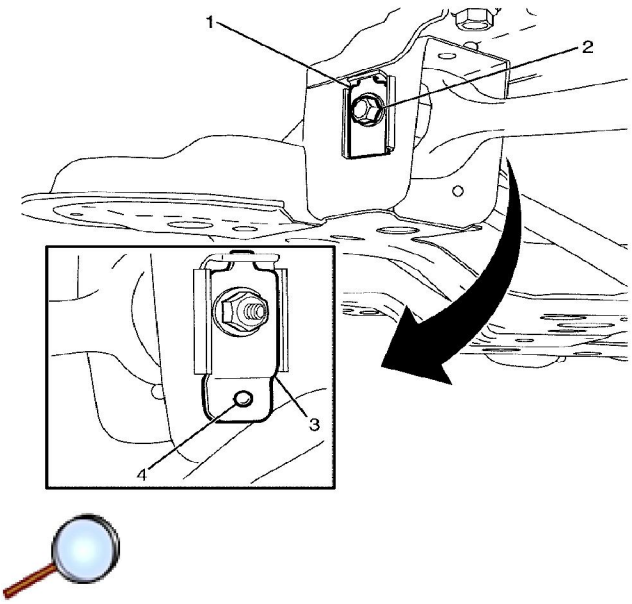


11. Remove the caster arm (1) from the subframe (2).

Installation Procedure

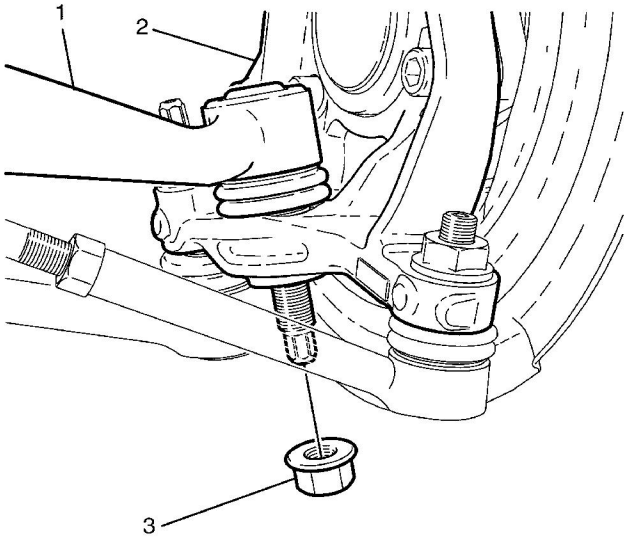


1. Install the NEW caster arm (1) to the subframe (2).



Note: The caster arm to subframe retaining bolt (2) is not to be fully tightened at this stage.

2. Install the NEW end plate with encapsulated retaining nut (3).
3. Install the end plate with encapsulated retaining nut to subframe retainer (4).
4. Install the offset washer (1).
5. Install the NEW caster arm to subframe retaining bolt (2).



6. Install the caster arm (1) to the steering knuckle (2).

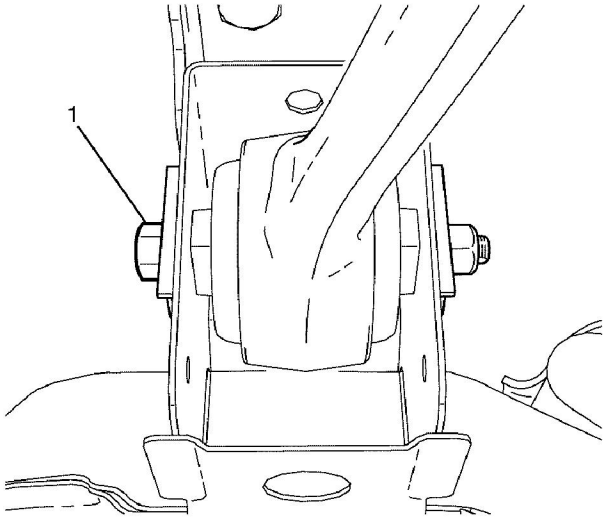
   Caution: Refer to Fastener Caution in the Preface section.

7. Install the NEW caster arm to steering knuckle retaining nut (3).

   Tighten

   - First Pass: Tighten the nut to 40 N·m (30 lb ft).
   - Final Pass: Tighten the nut an additional 60 degrees using E7115 .

8. Install the front wheel. Refer to Tire and Wheel Removal and Installation.
9. Lower the vehicle.



10. Bounce the vehicle several times to settle the suspension.

11. Check and adjust the wheel alignment. Refer to Wheel Alignment Measurement in Wheel Alignment.
12. Tighten the caster arm to subframe retaining bolt (1).

Tighten

- First Pass: Tighten the bolts to 50 N·m (30 lb ft).
- Final Pass: Tighten the bolts an additional 120 degrees using E7115

Front Suspension Strut Mount and Bearing Replacement

Special Tools

CH-48845

Removal Procedure

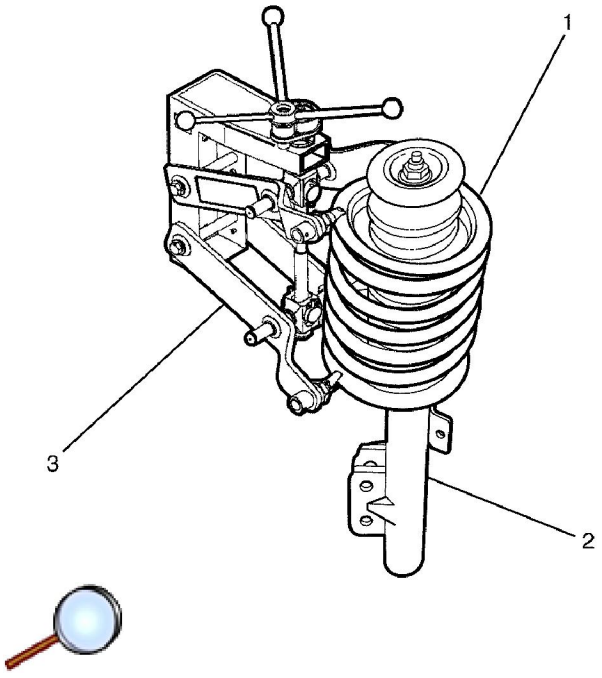
1. Ignition OFF.

   Danger: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

2. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.

   Warning: Refer to Safety Glasses Warning in the Preface section.

3. Remove the front wheel. Refer to Tire and Wheel Removal and Installation.
4. Remove the front strut assembly. Refer to Strut Assembly Replacement.



Note: Only use hand tools to perform the following service procedure.

5. Support the front strut assembly (3).

   Warning: Use only the CH-48845 Spring Compressor when servicing suspension components on this vehicle. Other tools may not be strong enough for the springs on this

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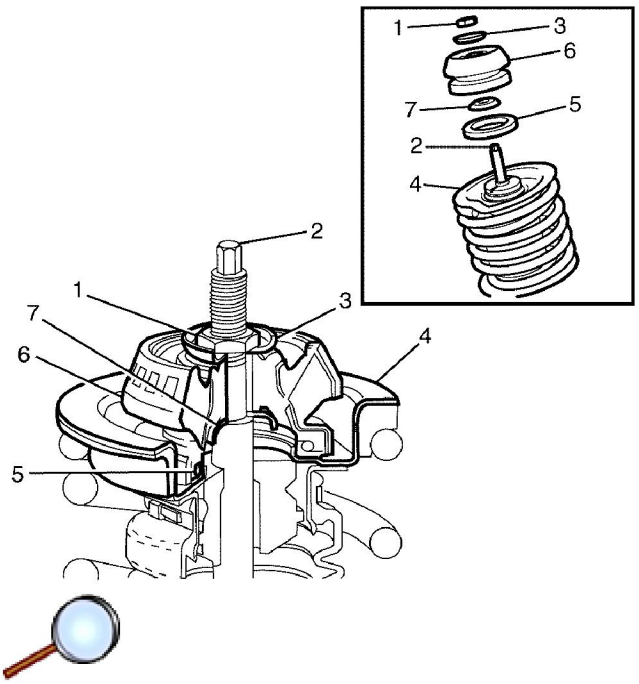
vehicle and you could be injured if you do not use Special Tool CH-48845. Failure to do so could result in serious personal injury.

6. Install the CH-48845 (2) to the coil spring (1).

Warning: Do not over compress the spring. Severe overloading may cause tool failure which could result in bodily injury.

7. Compress the coil spring (1) using CH-48845 (2) until the front strut assembly (3) is free from the spring tension of the coil spring (1).



8. Using a suitable tool hold the front strut piston shaft (2) while loosening the front strut assembly retaining nut (1).
9. Remove and discard the front strut assembly retaining nut (1).

Note: Note the orientation of the cup washer (3) in relation to the front strut assembly support mount (6).

10. Remove the front strut assembly cup washer (3).
11. Remove the front strut assembly support mount (6).

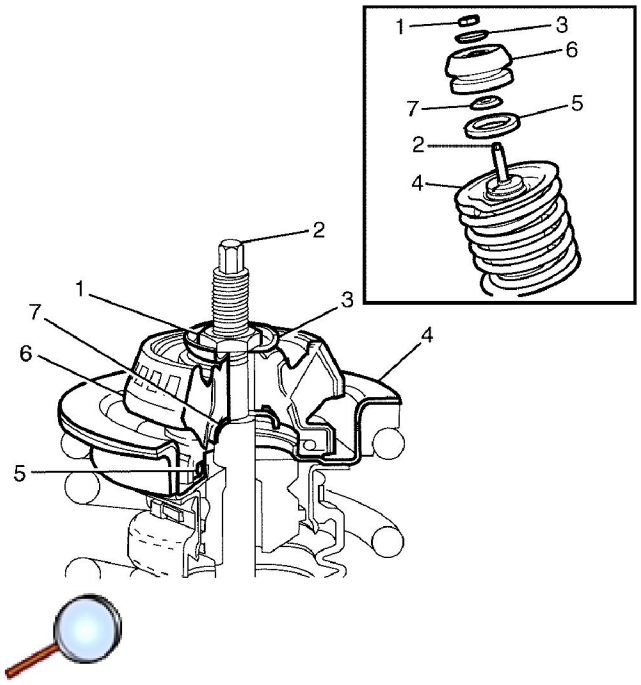
Note: Note the orientation of the cup washer (7) in relation to the front strut assembly support mount (6).

12. Remove the front strut assembly cup washer (7)

Note: Note the orientation of the front strut assembly support bearing (5) in relation to the coil spring seat (4).

13. Remove the front strut assembly bearing (5).

Installation Procedure



Note: The front strut assembly support bearing (5) is a sealed part and is replaced as an assembly.

Note: Note the orientation of the front strut assembly support bearing (5) in relation to the coil spring seat (4).

1. Instal the front strut assembly bearing (5).

Note: Note the orientation of the cup washer (7) in relation to the front strut assembly support mount (6).

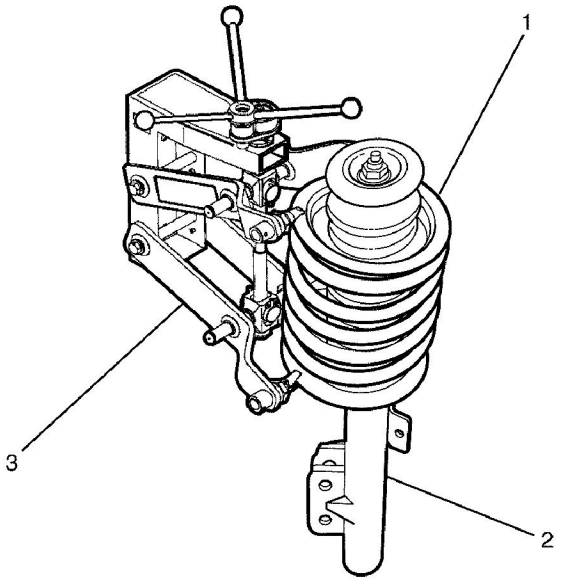
2. Install the front strut assembly cup washer (7)
3. Install the front strut assembly support mount (6).

Note: Note the orientation of the cup washer (3) in relation to the front strut assembly support mount (6).

4. Install the front strut assembly cup washer (3).

Caution: Refer to Fastener Caution in the Preface section.

5. Install a NEW front strut assembly retaining nut (1) and tighten to **75 N·m (55 lb ft)**.



6. Make sure that the coil spring (1) is correctly positioned to the front strut assembly (3).
7. Release the CH-48845 (2) from the coil spring (1).
8. Install the front strut assembly to the vehicle. Refer to Strut Assembly Replacement.
9. Install the front wheel to the vehicle. Refer to Tire and Wheel Removal and Installation.
10. Lower the vehicle.

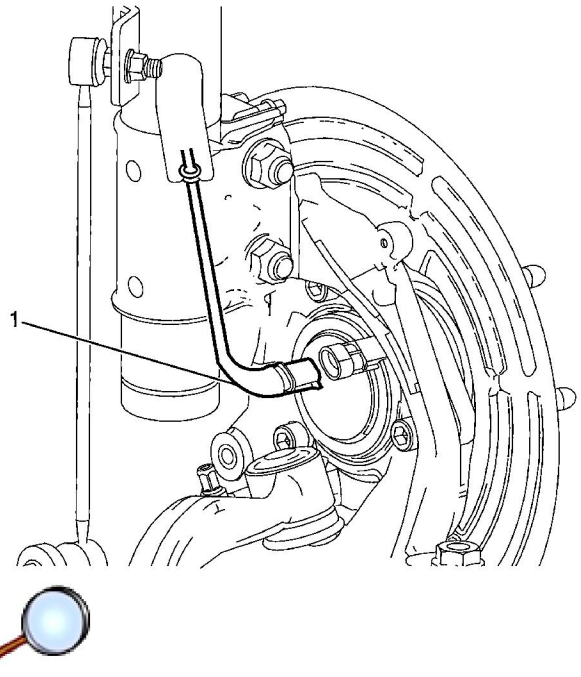
Front Wheel Bearing and Hub Replacement

Removal Procedure

Warning: Refer to Safety Glasses Warning in the Preface section.

Danger: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the front wheel. Refer to Tire and Wheel Removal and Installation.
3. Remove the brake disc. Refer to Front Brake Rotor Replacement.



4. Disconnect the wheel speed sensor electrical connector (1).

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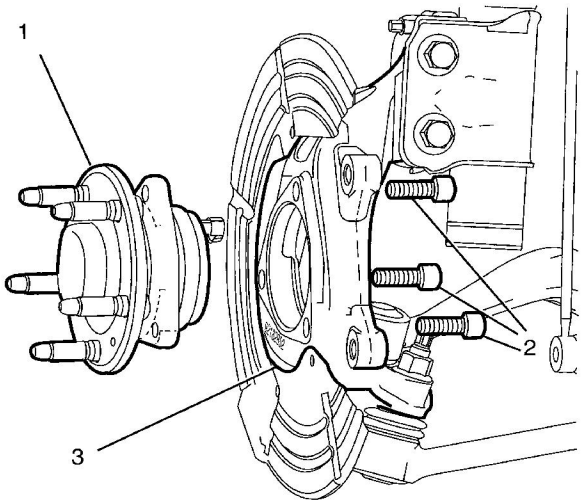


Note: Before a hub assembly is replaced, the end-float measurement must be checked. Refer to Front Wheel Hub Assembly Inspection

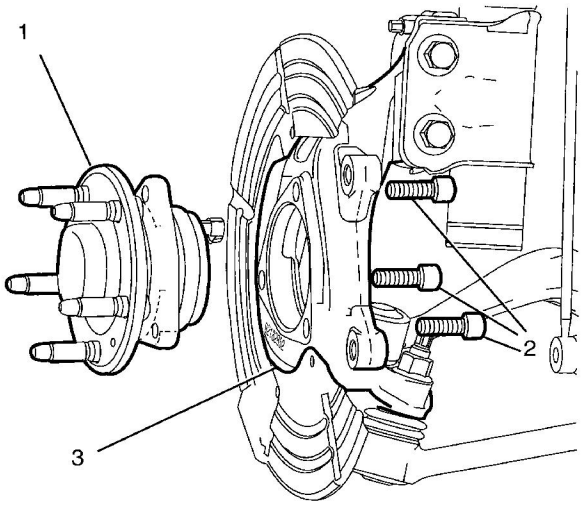
Note: Bolts with micro-encapsulated thread sealant must be discarded after removal.

5. Remove the hub assembly to steering knuckle retaining bolts (2).

   Discard the bolts.

6. Remove the hub assembly (1) from the steering knuckle (3).

Installation Procedure



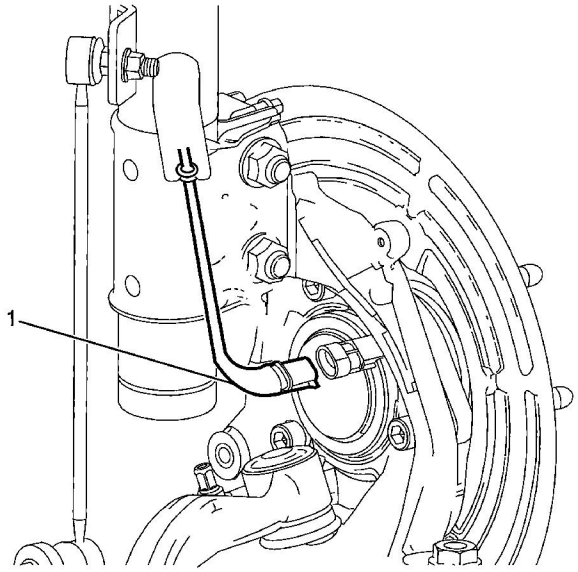
Note: Wheel studs are the only serviceable item of the front wheel hub assembly.

1. Install the hub assembly (1) to the steering knuckle (3).

   Caution: Refer to Fastener Caution in the Preface section.

   Note: After a hub assembly is replaced, the end-float measurement must be checked. Refer to Front Wheel Hub Assembly Inspection

2. Install the NEW hub assembly to the steering knuckle retaining bolts (2) and tighten to **107.5 N·m (79 lb ft)**.



3. Connect the wheel speed sensor electrical connector (1).
4. Install the brake disc. Refer to Front Brake Rotor Replacement.
5. Install the front wheel. Refer to Tire and Wheel Removal and Installation.
6. Remove the safety stands.
7. Lower the vehicle to the ground.

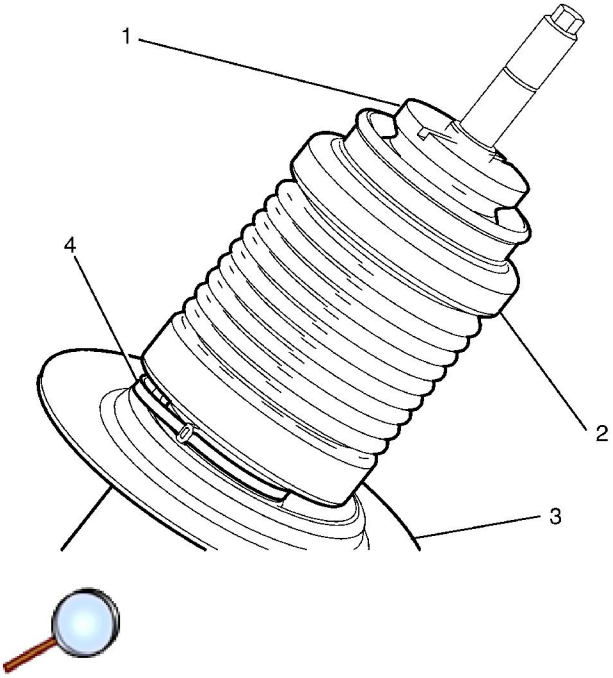
Shock Absorber Replacement

Removal Procedure

Warning: Refer to Safety Glasses Warning in the Preface section.

Danger: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the front wheel. Refer to Tire and Wheel Removal and Installation.
3. Remove the front strut assembly. Refer to Strut Assembly Replacement.
4. Remove the front strut assembly support bearing and mount. Refer to Front Suspension Strut Mount and Bearing Replacement
5. Remove the front coil spring. Refer to Coil Spring Replacement in Front Suspension.



6. Remove the compression bumper (1).
7. Remove the dust boot lower retaining clamp (4).

   Discard the clamp.

8. Remove the dust boot and filter assembly (2) from the strut unit (3).
9. Inspect all parts for wear and damage.

Installation Procedure

Caution: Refer to Fastener Tightening Specifications in the Preface section.

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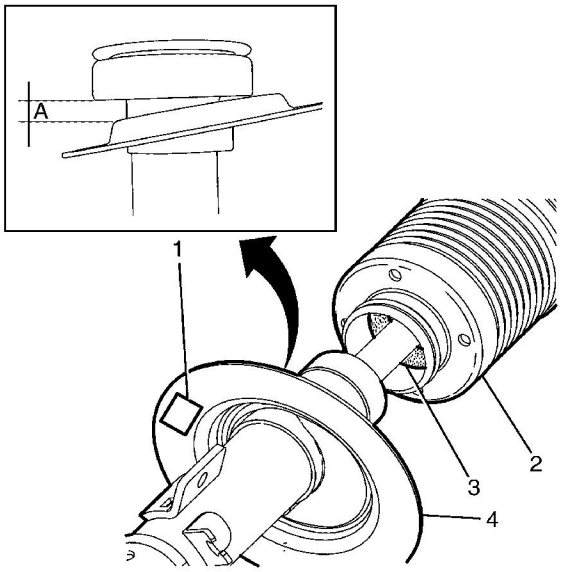
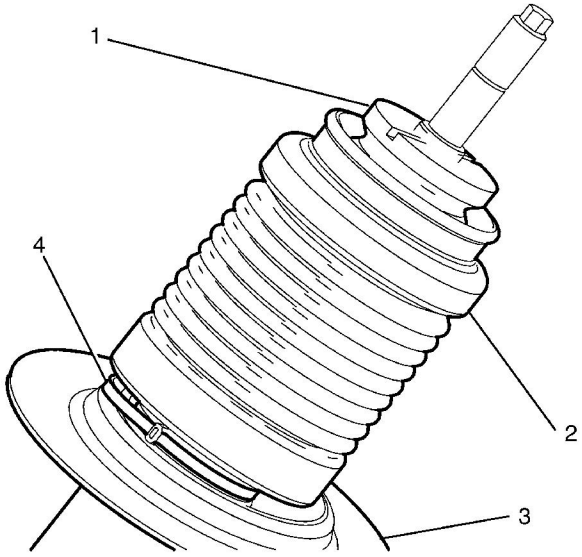


Note: The filter (3) must remain correctly seated inside the dust boot (2).

Note: The bottom of the dust boot and filter assembly (2) must be positioned so that the lower lip of the dust boot completely passes over the strut body retaining ring.

1. Install the dust boot and filter assembly (2) over the strut unit (3).



2. Install the NEW dust boot lower retaining clamp (4) securing the dust boot (2) to the strut unit (3).
3. Install the compression bumper (1).
4. Install the coil spring. Refer to Coil Spring Replacement in Front Suspension.
5. Install the front strut assembly support bearing and mount. Refer to Front Suspension Strut Mount and Bearing Replacement

6. Install the front strut assembly. Refer to Strut Assembly Replacement.
7. Install the front wheel. Refer to Tire and Wheel Removal and Installation.
8. Remove the safety stands.
9. Lower the vehicle to the ground.

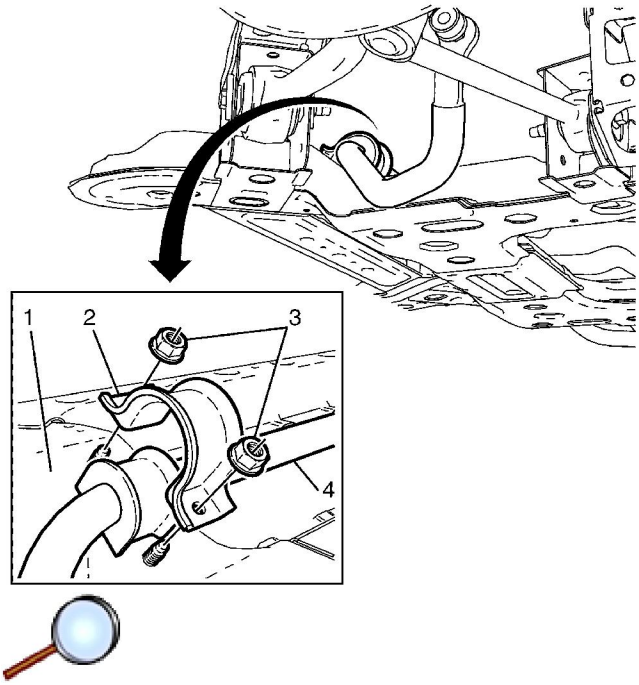
Stabilizer Shaft Insulator Replacement

Removal Procedure

Warning: Refer to Safety Glasses Warning in the Preface section.

Danger: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.



Note: Nuts with micro-encapsulated thread sealant must be discarded after removal.

2. Remove the stabilizer bar insulator bracket to subframe retaining nuts (3) on both sides of the stabilizer bar (4).

   Discard the nuts.

3. Remove the stabilizer bar insulator bracket (2) from the subframe (1) on both sides of the stabilizer bar.

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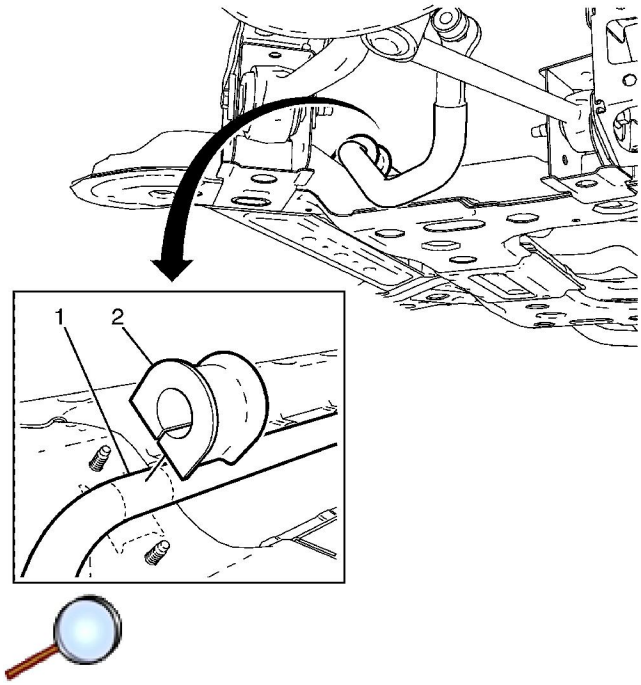
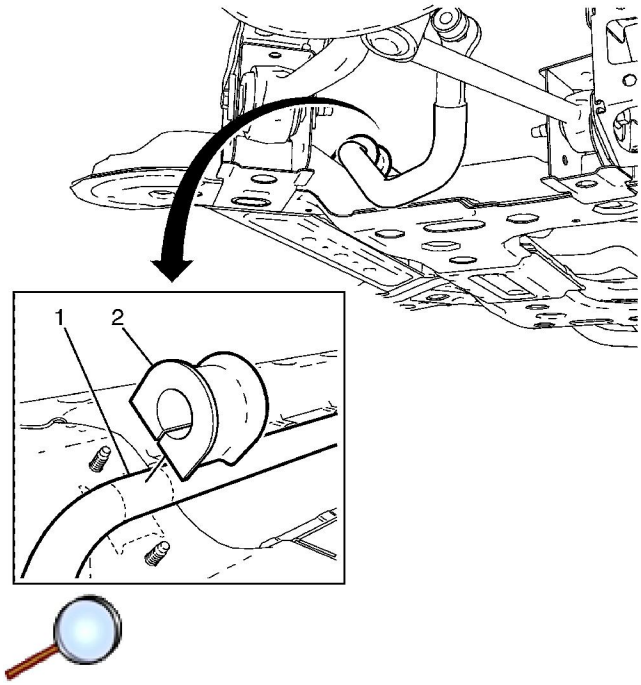
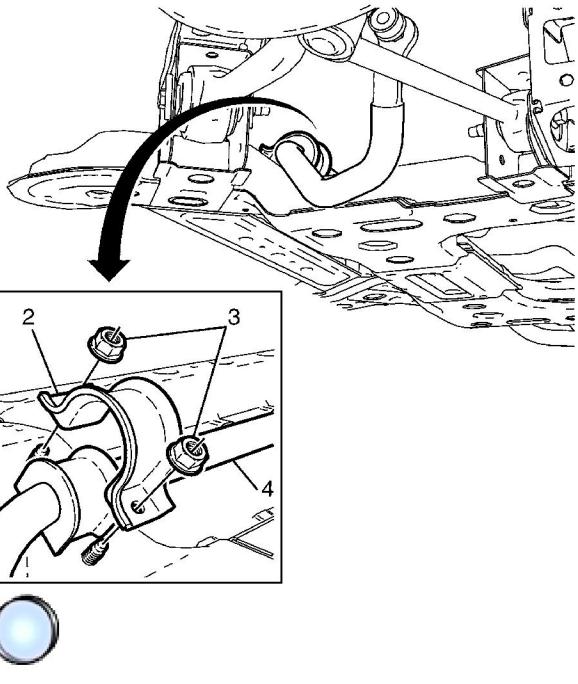


4. Remove the stabilizer bar insulator (2) from both sides of the stabilizer bar (1).
5. Inspect all parts for wear and damage.

Installation Procedure



1. Install the stabilizer bar insulator (2) to both sides of the stabilizer bar (1).



2. Install the stabilizer bar insulator bracket (2) to the subframe (1) on both sides of the stabilizer bar.

   Caution: Refer to Fastener Caution in the Preface section.

3. Install the stabilizer bar insulator bracket to the subframe retaining nuts (3) on both sides of the stabilizer bar and tighten to **22 N·m (16 lb ft)**.
4. Remove the safety stands.
5. Lower the vehicle to the ground.

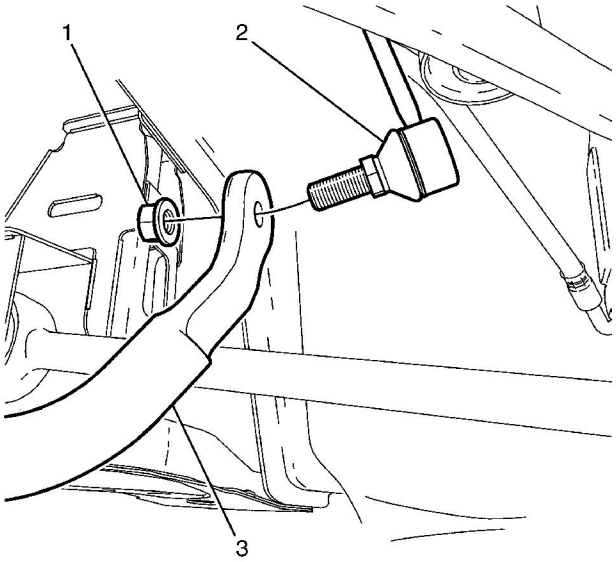
Stabilizer Shaft Link Replacement

Removal Procedure

Warning: Refer to Safety Glasses Warning in the Preface section.

Danger: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the front wheel. Refer to Tire and Wheel Removal and Installation.



Note: Nuts with micro-encapsulated thread sealant must be discarded after removal.

3. Remove the stabilizer bar link to stabilizer bar retaining nut (1).

   Discard the nut.

4. Disconnect the stabilizer bar link (2) from the stabilizer bar (3).

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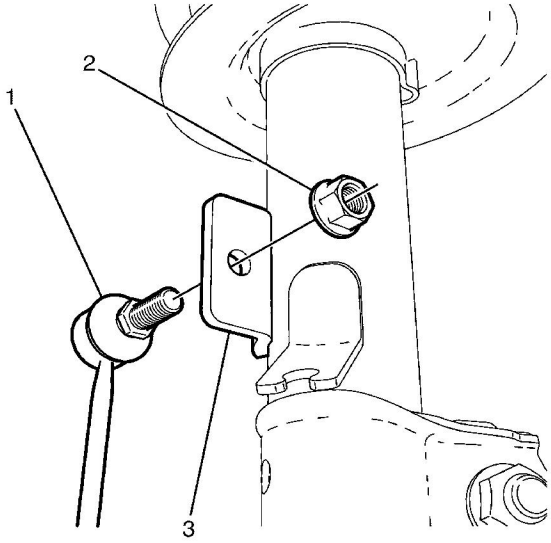
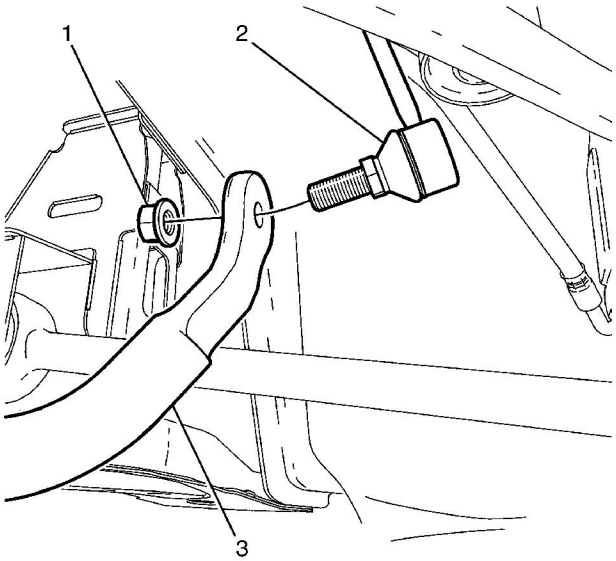


5. Remove the stabilizer bar link to strut assembly retaining nut (2).

   Discard the nut.

6. Remove the stabilizer link bar (1) from the strut assembly bracket (3).
7. Inspect all parts for wear and damage.

Installation Procedure

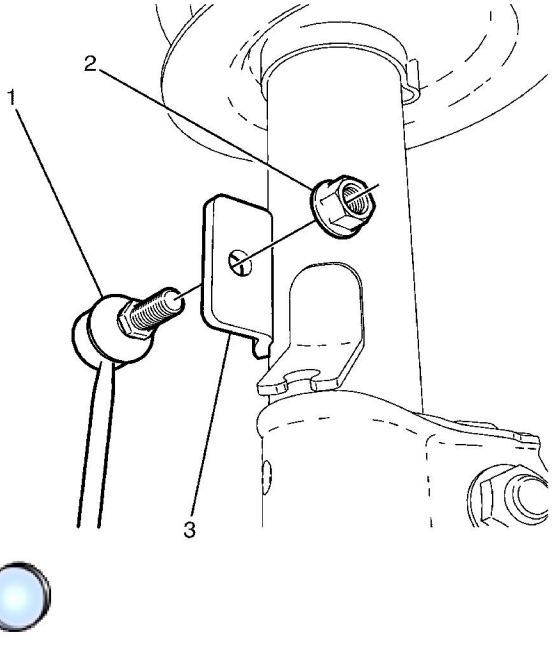


Note: Install the shorter link end to the stabilizer bar.

1. Install the stabilizer bar link (2) to the stabilizer bar (3).

   Caution: Refer to Fastener Caution in the Preface section.

2. Install the NEW stabilizer bar link to stabilizer bar retaining nut (1) and tighten to **50 N·m (37 lb ft)**.



Note: Install the longer link end to the strut.

3. Install the stabilizer bar link (1) to the strut assembly bracket (3).
4. Install the NEW stabilizer bar link to strut assembly retaining nut (2) and tighten to **50 N·m (37 lb ft)**.
5. Install the front wheel. Refer to Tire and Wheel Removal and Installation.
6. Remove the safety stands.
7. Lower the vehicle to the ground.

Stabilizer Shaft Replacement

Special Tools

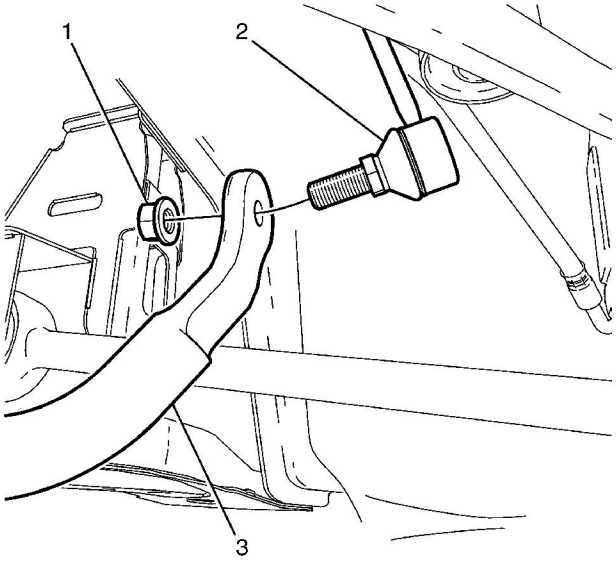
J-42188-B .

Removal Procedure

Warning: Refer to Safety Glasses Warning in the Preface section.

Danger: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the driver side front wheel. Refer to Tire and Wheel Removal and Installation.



3. Remove and discard the stabiliser bar link to stabiliser bar retaining nut (1).
4. Disconnect the stabiliser bar link (2) from the stabiliser bar (3).
5. Repeat steps 3 and 4 for the opposite side of the stabiliser bar.

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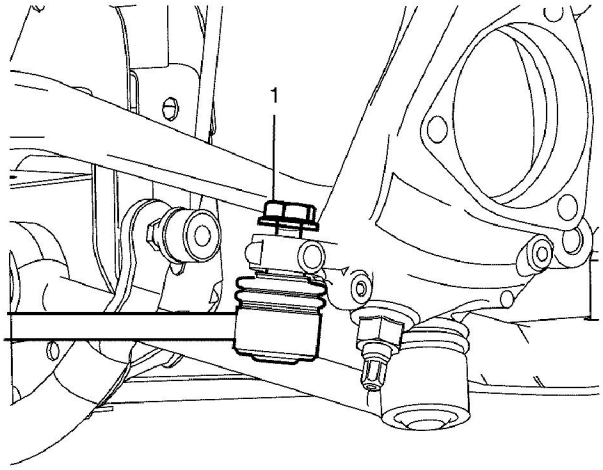
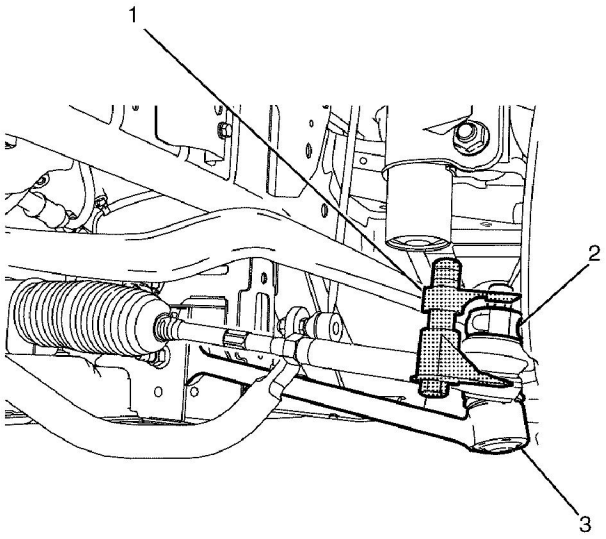
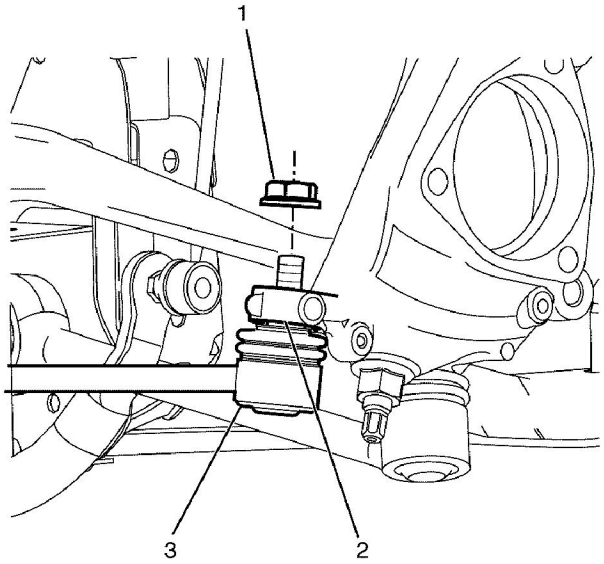


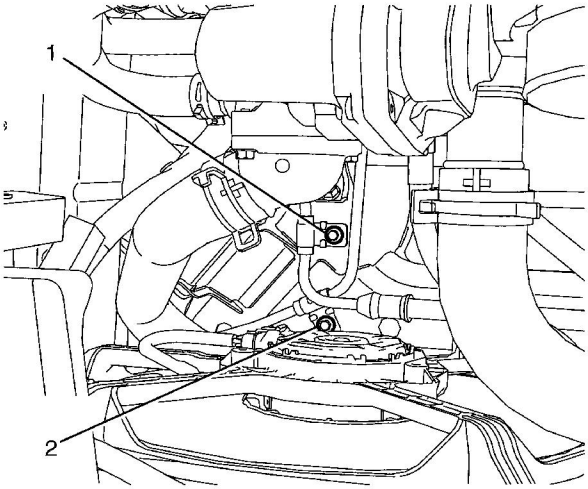
6. Loosen the tie rod end to steering knuckle retaining nut (1) about two turns.



7. Using J-42188-B (1) disconnect the driver side tie rod end (3) from the steering knuckle (2).



8. Remove and discard the driver side tie rod end to steering knuckle retaining nut (1).
9. Separate the driver side tie rod end (3) from the steering knuckle (2).



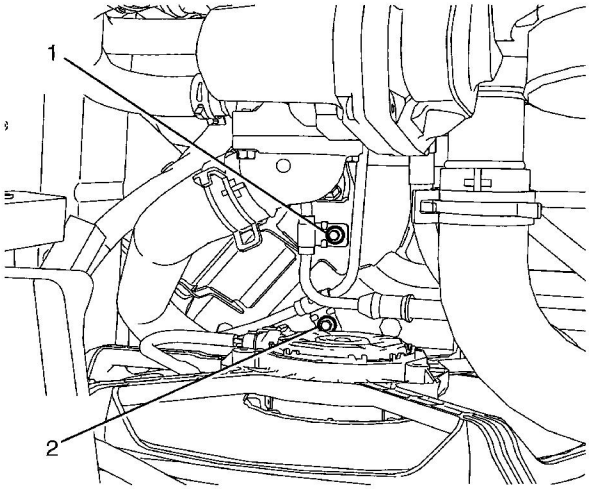
10. Remove the air inlet duct.
    - For 3.6L engine refer to Air Cleaner Inlet Duct Replacement.
    - For 6.0L engine refer to Air Cleaner Inlet Duct Replacement.
11. Remove the power steering gear inlet pipe bracket to subframe retaining bolt (2).
12. Remove the power steering gear outlet pipe bracket to subframe retaining bolt (1).
13. Remove the stabliser bar insulators from the stabiliser bar. Refer to Stabilizer Shaft Insulator Replacement.
14. Remove the stabiliser bar from the vehicle.

Installation Procedure

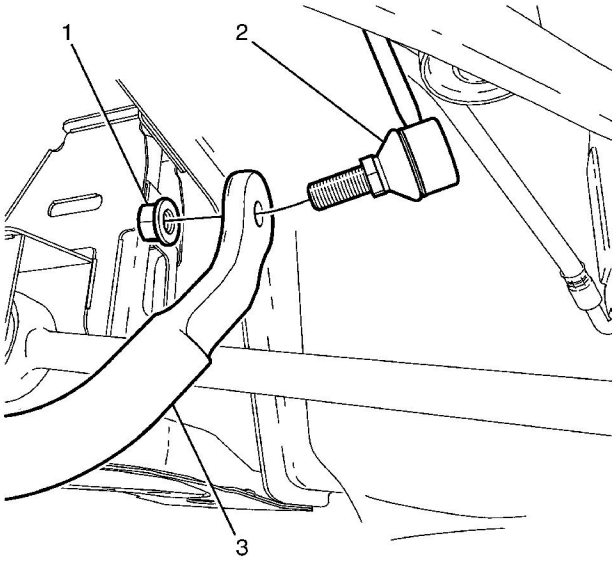
Caution: Refer to Fastener Tightening Specifications in the Preface section.

1. Install the NEW stabilizer bar to the vehicle.
2. Install the stabilizer bar insulators. Refer to Stabilizer Shaft Insulator Replacement.

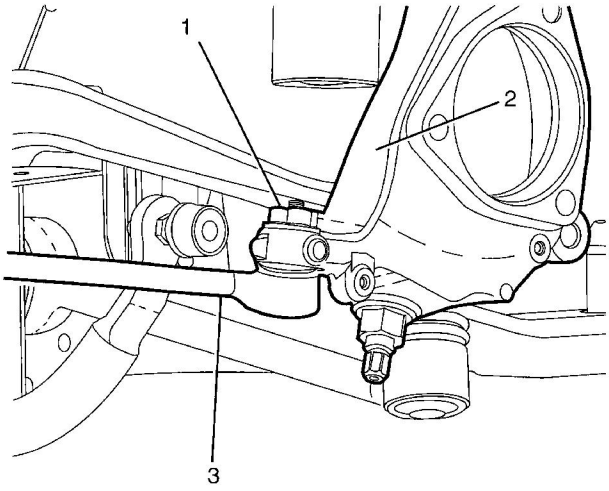
Caution: Refer to Fastener Caution in the Preface section.



3. Install the power steering gear inlet pipe bracket to the subframe retaining bolt (2) and tighten to **9 N·m (80 lb in)**.
4. Install the power steering gear outlet pipe bracket to the subframe retaining bolt (1) and tighten to **9 N·m (80 lb ft)**.
5. Install the air inlet duct.
   - For 3.6L engine refer to Air Cleaner Inlet Duct Replacement.
   - For 6.0L engine refer to Air Cleaner Inlet Duct Replacement.



6. Connect the stabiliser bar link (2) to the NEW stabiliser bar (3).
7. Install the stabilizer bar link to the stabilizer bar retaining nut (1) and tighten to **50 N·m (37 lb ft)**.
8. Repeat steps 6 and 7 for the opposite side of the stabiliser bar.



9. Install the driver side tie rod end (3) to the steering knuckle (2).
10. Install the NEW driver side tie rod end to steering knuckle retaining nut (1) and tighten to **70 N·m (52 lb ft)**.
11. Install the front wheel. Refer to Tire and Wheel Removal and Installation.
12. Lower the vehicle.

Steering Knuckle Replacement

Special Tools

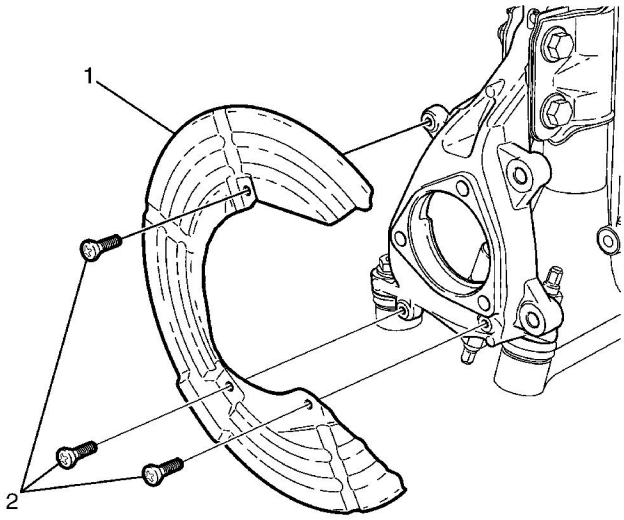
- J-42188-B .
- E7115 .

Removal Procedure

Warning: Refer to Safety Glasses Warning in the Preface section.

Danger: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the front wheel. Refer to Tire and Wheel Removal and Installation.
3. Remove the front wheel hub assembly. Refer to Front Wheel Bearing and Hub Replacement.



4. Remove the brake disc splash shield to steering knuckle retaining bolts (2).
5. Remove the brake disc splash shield (1) from the steering knuckle.

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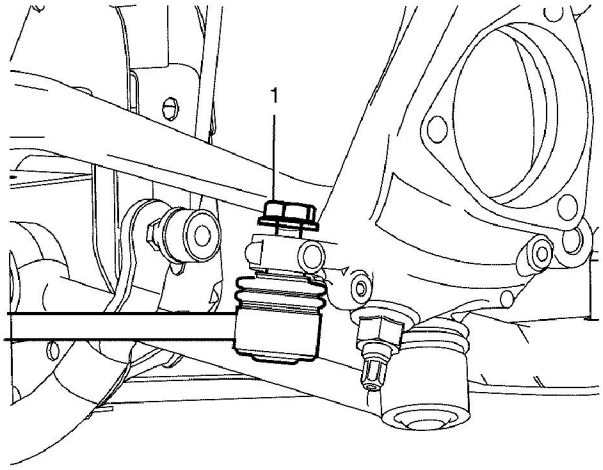
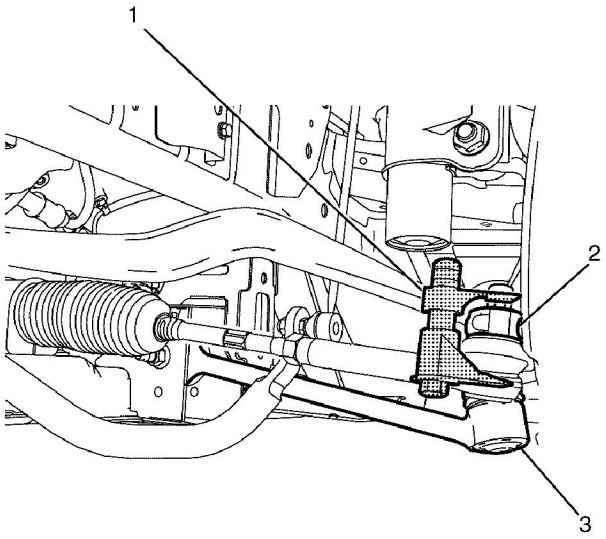
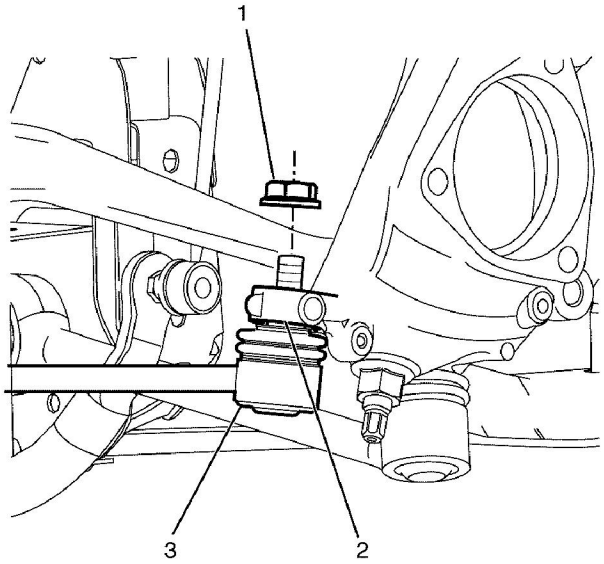


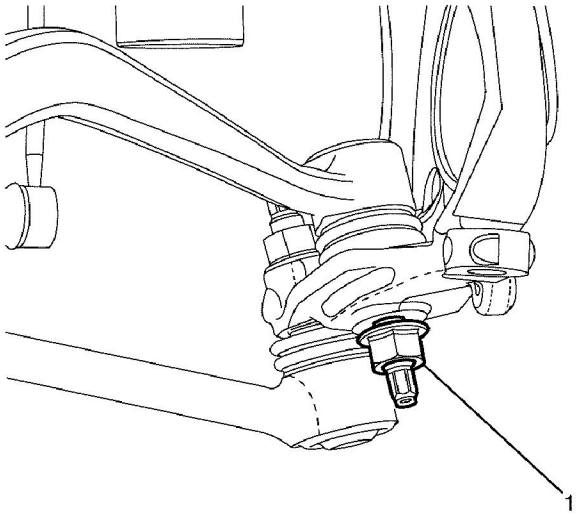
6. Loosen the tie rod end to steering knuckle retaining nut (1) about two turns.



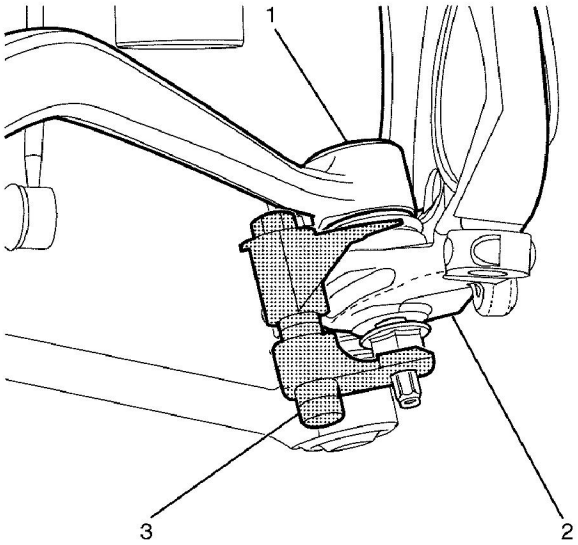
7. Using J-42188-B (1) disconnect the tie rod end (3) from the steering knuckle (2).



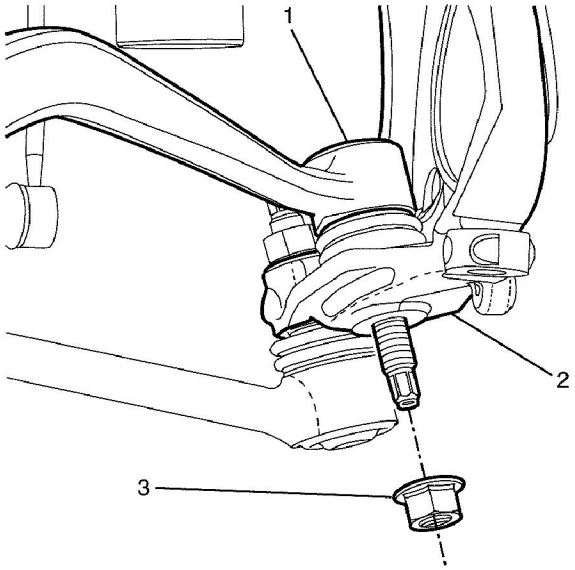
8. Remove and discard the tie rod end to steering knuckle retaining nut (1).
9. Separate the tie rod end (3) from the steering knuckle (2).



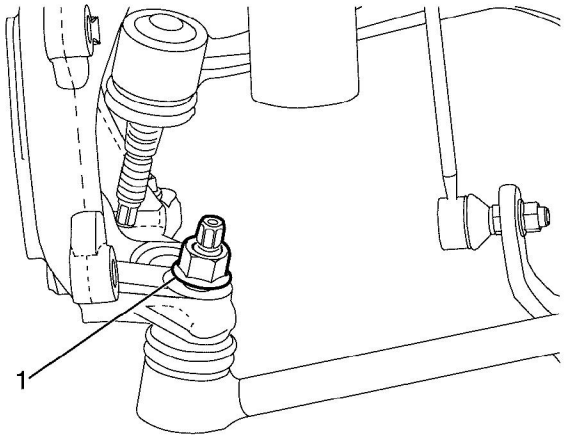
10. Loosen the caster arm to steering knuckle retaining nut (1) about two turns.



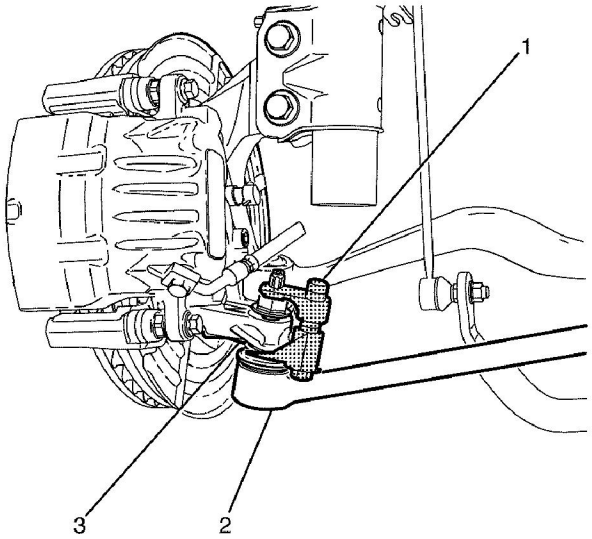
11. Using J-42188-B (1) disconnect the caster arm (1) from the steering knuckle (2).



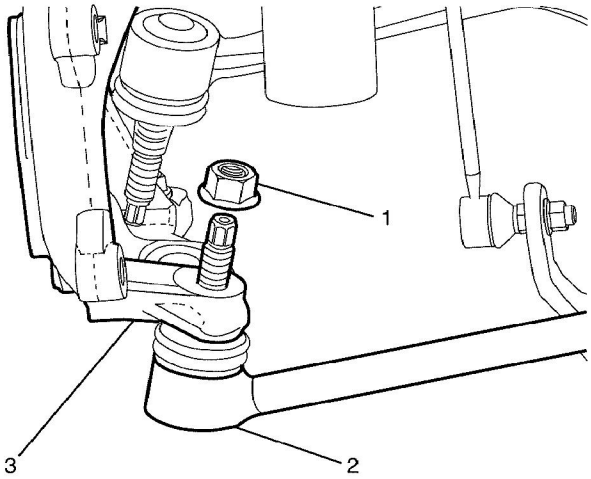
12. Remove and discard the caster arm to steering knuckle retaining nut (3).
13. Separate the caster arm (1) from the steering knuckle (2).



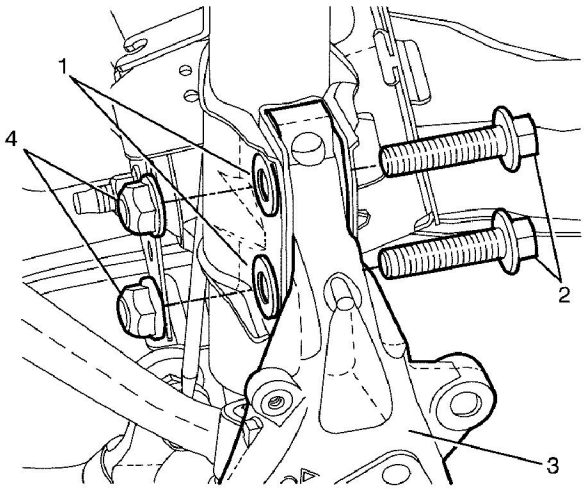
14. Loosen the control arm to steering knuckle retaining nut (1) about two turns.



15. Using J-42188-B (1) disconnect the control arm (2) from the steering knuckle (3).

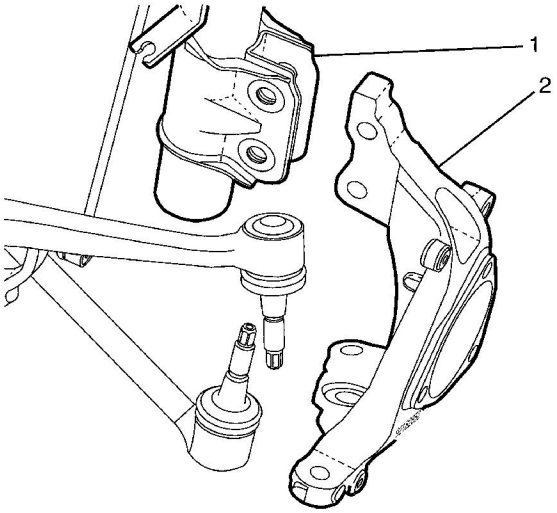


16. Remove and discard the control arm to steering knuckle retaining nut (1).
17. Separate the control arm (2) from the steering knuckle (3).



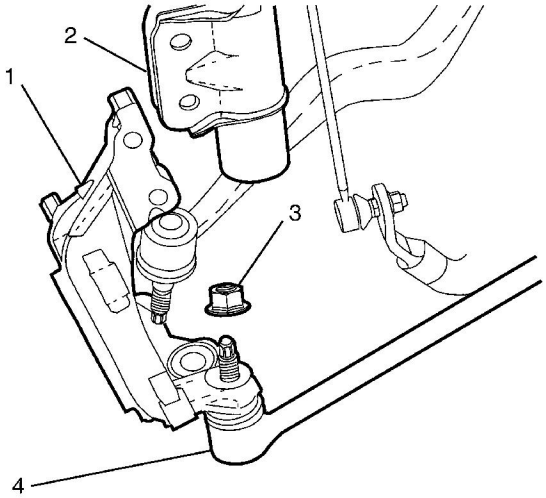
Note: Suitably support the steering knuckle (3) before removing the strut assembly to steering knuckle retaining bolts (2).

18. Remove and discard the strut assembly to steering knuckle retaining bolts (2), nuts (4) and washers (1).



19. Remove the steering knuckle (2) from the strut assembly (1).

Installation Procedure



1. Install the steering knuckle (1) to the control arm (4).

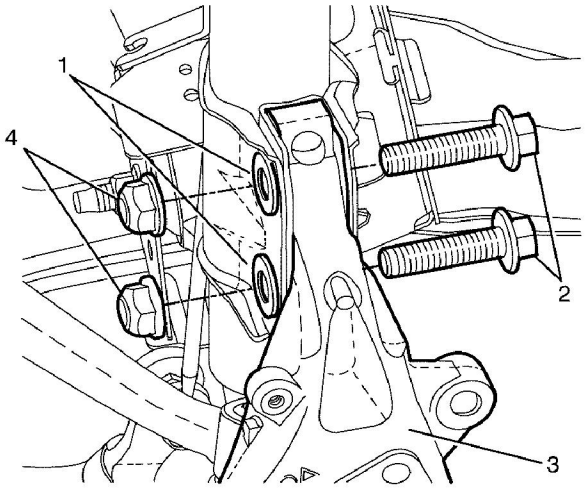
   Caution: Refer to Fastener Caution in the Preface section.

2. Install the NEW control arm to steering knuckle retaining nut (3).

   Tighten

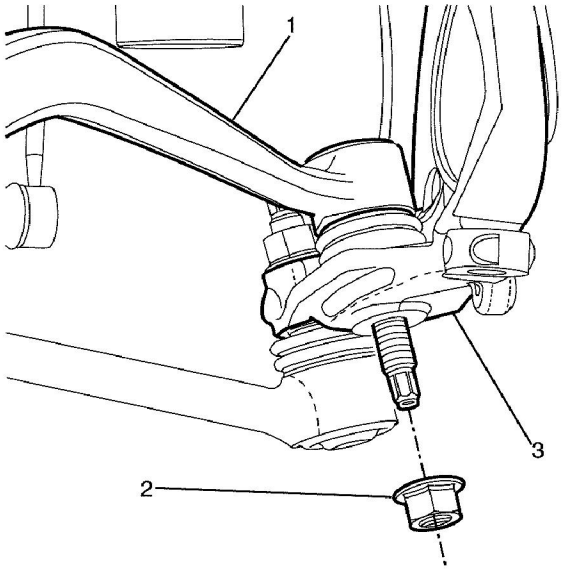
- First Pass: Tighten the nut to 40 N·m (30 lb ft)
- Final Pass: Tighten the nut an additional 60 degrees using E7115 .

3. Install the steering knuckle (1) to the strut assembly (2).



Note: The steering knuckle (3) to strut assembly retaining bolts (2), nuts (4) and washers (1) are not to be fully tightened at this stage.

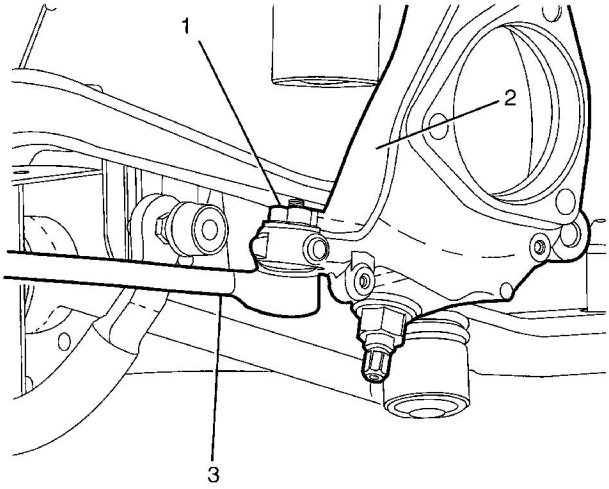
4. Install the NEW steering knuckle to strut assembly retaining bolts (2), nuts (4) and washers (1).



5. Install the caster arm (1) to the steering knuckle (2).
6. Install the NEW caster arm to steering knuckle retaining nut (3).

Tighten

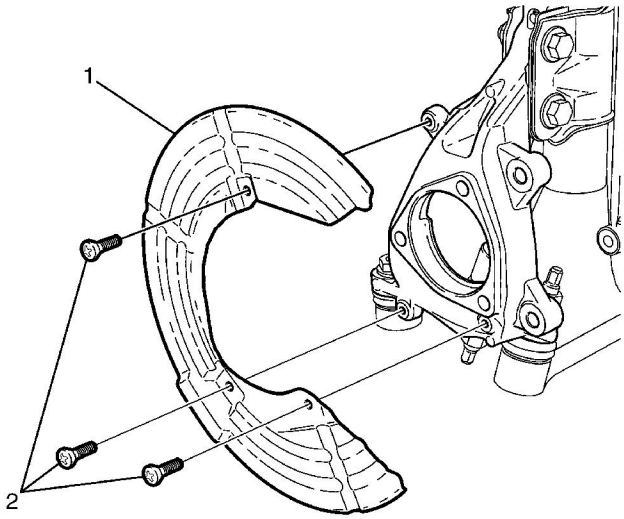
- First Pass: Tighten the nut to 40 N·m (30 lb ft).
- Final Pass: Tighten the nut an additional 60 degrees using E7115 .



7. Install the tie rod end (3) to the steering knuckle (2).
8. Install the NEW tie rod end to steering knuckle retaining nut (1).

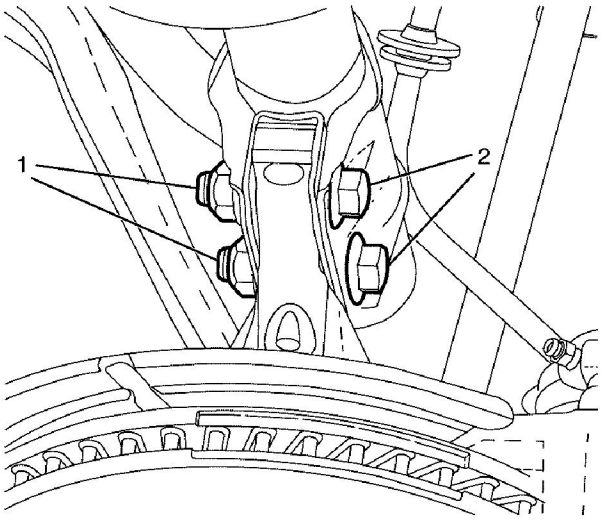
Tighten

- First Pass: Tighten the nut to 25 N·m (19 lb ft).
- Final Pass: Tighten the nut an additional 120 degrees using E7115



9. Install the brake disc splash shield (1).

10. Install the brake disc splash shield to steering knuckle retaining bolts (2) and tighten to **9 N·m (7 lb ft)**.
11. Install the front wheel hub assembly. Refer to Front Wheel Bearing and Hub Replacement.



Note: If the steering knuckle has been replaced, the end-float measurement must be checked. Refer to Front Wheel Hub Assembly Inspection.

12. Install the front wheel. Refer to Tire and Wheel Removal and Installation.
13. Lower the vehicle.
14. Bounce the vehicle several times to settle the suspension.
15. Check and adjust the wheel alignment. Refer to Wheel Alignment Measurement.
16. Tighten the strut assembly to steering knuckle retaining bolts (2) and nuts (1).

Tighten

- First Pass: Tighten the bolts to 85 N·m (63 lb ft).
- Second Pass: Tighten the bolts to 100 N·m (74 lb ft).
- Final Pass: Tighten the bolts an additional 90 degrees using E7115

Strut Assembly Replacement

Special Tools

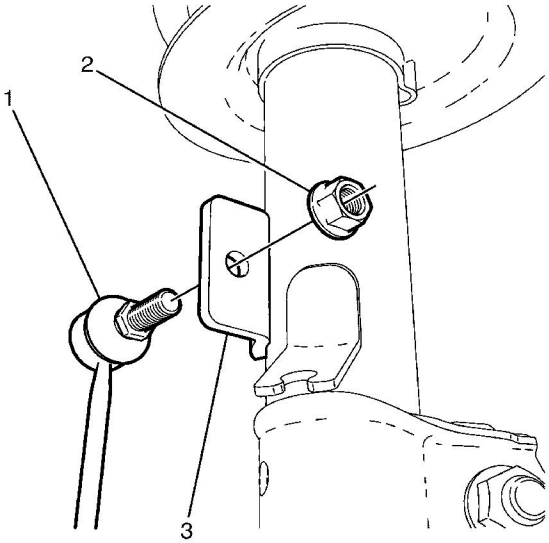
E7115 Angle Wrench.

Removal Procedure

Warning: Refer to Safety Glasses Warning in the Preface section.

Danger: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the front wheel. Refer to Tire and Wheel Removal and Installation.



Note: Nuts with micro-encapsulated thread sealant must be discarded after removal.

3. Remove the stabilizer bar link to strut assembly retaining nut (2).

   Discard the nut.

4. Disconnect the stabilizer bar link (1) from the strut assembly bracket (3).

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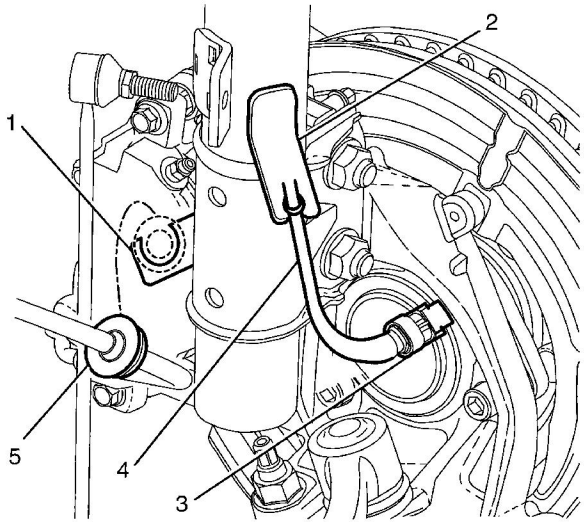
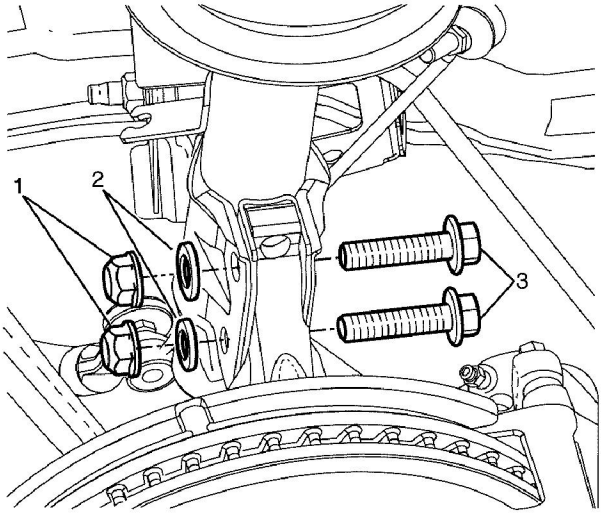


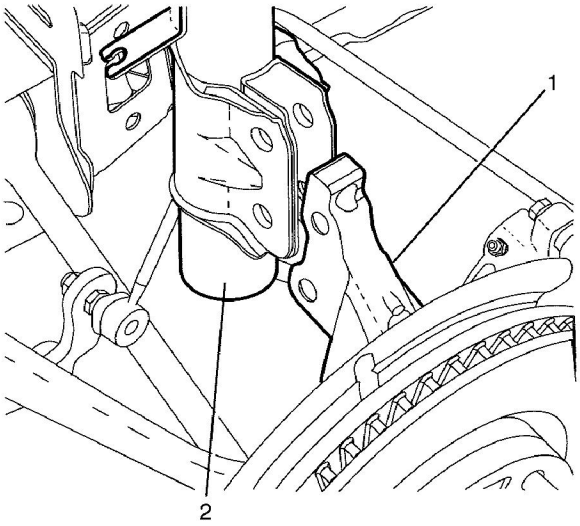
5. Disconnect the wheel speed sensor electrical connector (3).
6. Disconnect the wheel speed sensor wiring harness (4) from the strut assembly bracket (2).
7. Disconnect the brake hose (5) from the strut bracket (1).



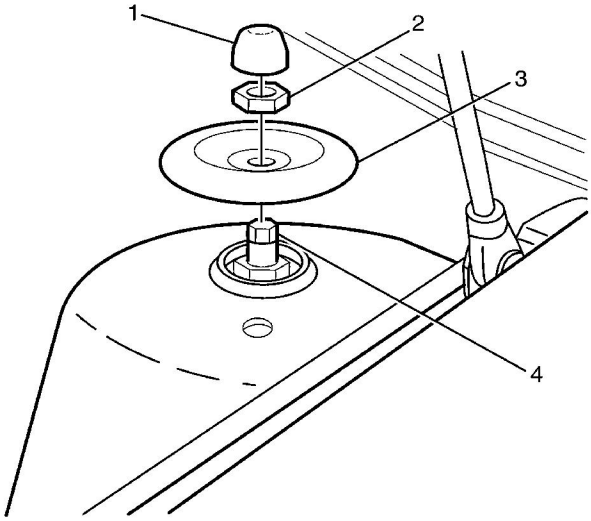
Note: The strut assembly to steering knuckle retaining bolts (3) nuts (1) and washers (2) are single use parts. They must be discarded after removal.

8. Remove the strut assembly to steering knuckle retaining bolts (3), nuts (1) and washers (2).

   Discard the bolts, nuts and washers.



9. Disconnect the steering knuckle (1) from the strut assembly (2).
10. Lower the vehicle.



11. Remove the stud dust cover (1) from the strut assembly to body retaining nut (2).

Note: The strut assembly (4) must be supported from underneath before the strut assembly to body retaining nut (2) is removed.

12. Remove the strut assembly to body retaining nut (2) while holding the strut piston shaft (4).

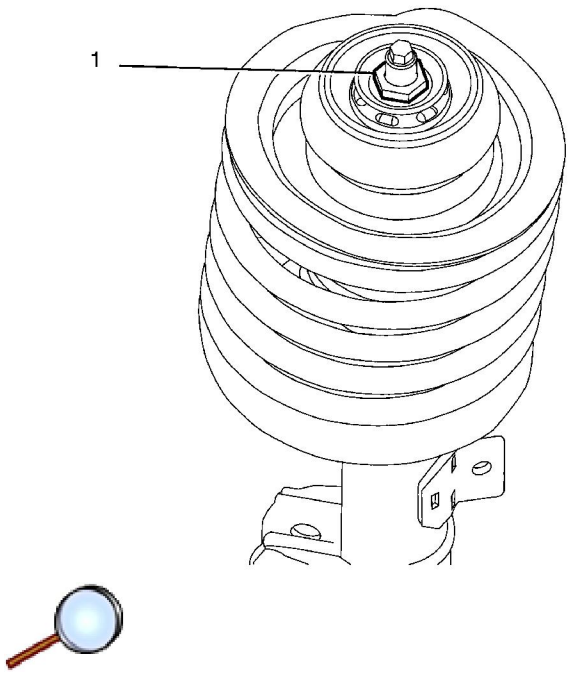
    Discard the nut.

13. Remove the strut assembly to body retaining plate (3).
14. Remove the strut assembly from the vehicle.

15. Inspect all parts for wear and damage.

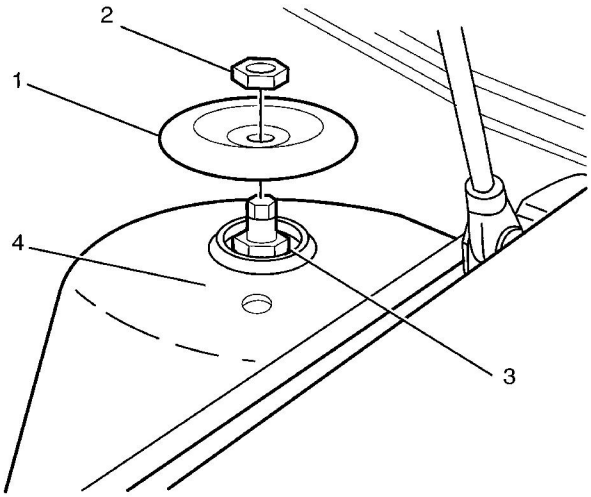
Installation Procedure

Caution: Refer to Fastener Caution in the Preface section.



Note: The strut assembly retaining nut (1) must be checked for correct torque before installing the strut assembly into the vehicle. The strut assembly retaining nut torque must be 75 N·m (55 lb ft).

1. Check the torque of the strut assembly retaining nut (1), correct if necessary.



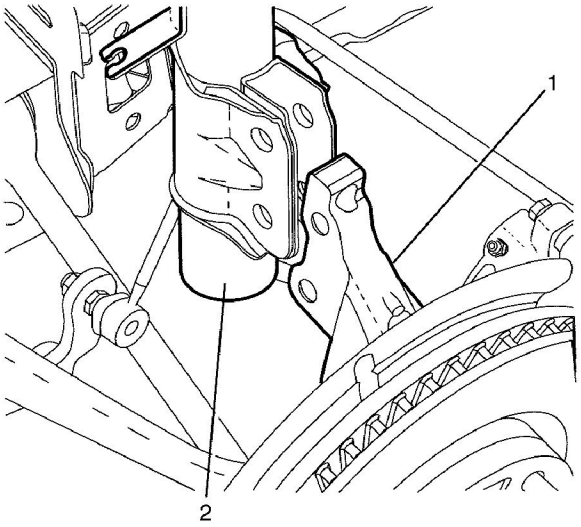
2. Install the strut assembly (3) to the vehicle (4).
3. Install strut assembly to body retaining plate (1).

Note: The strut assembly to body retaining nut (2) must not be fully tightened at this stage.

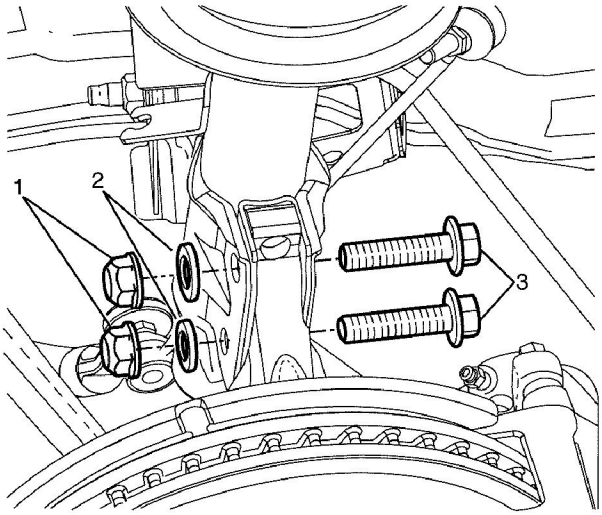
4. Install the NEW strut assembly to body retaining nut (2) to the strut assembly (3).

Do not fully tighten at this stage.

5. Raise the vehicle.



6. Install the steering knuckle (1) to the strut assembly (2).



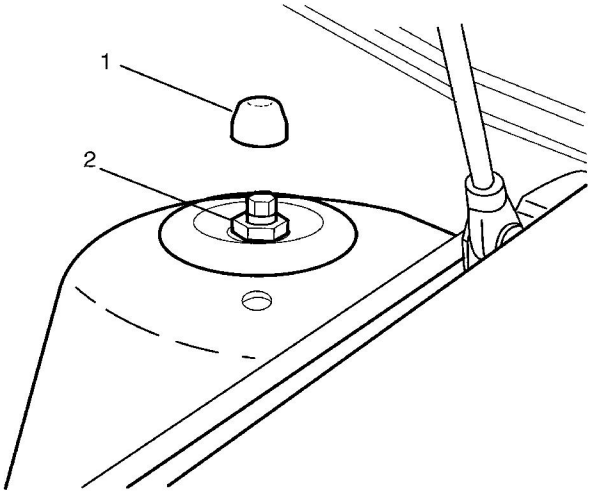
Note: Pivot the hub and steering knuckle assembly sufficiently to line up the bolt holes in the steering knuckle and strut assembly.

Note: The strut assembly to steering knuckle retaining bolts (3) and nuts (1) must not be fully tightened at this stage.

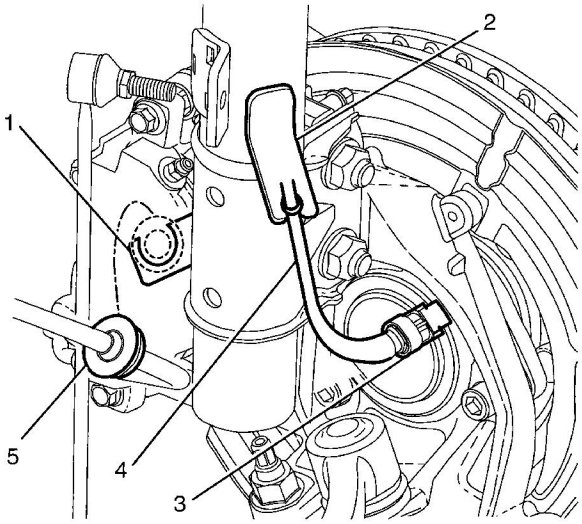
7. Install the NEW Strut assembly to steering knuckle retaining bolts (3), nuts (1) and washers (2).

   Do not fully tighten at this stage.

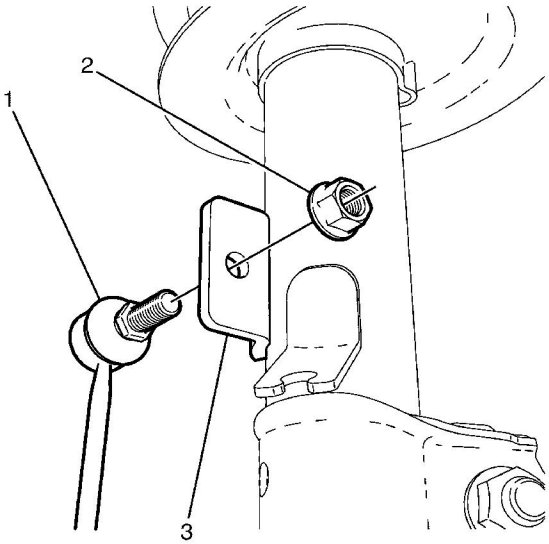
8. Lower the vehicle.



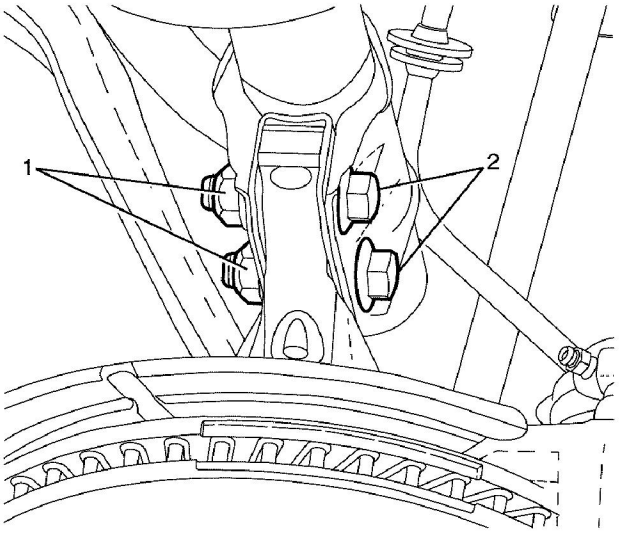
9. Install the NEW strut assembly to the body retaining nut (2) and tighten to **55 N·m (40 lb ft)**.
10. Install the dust cover (1) to the strut assembly to body retaining nut (2).
11. Raise the vehicle.



12. Install the brake hose (5) to the strut assembly bracket (1).
13. Connect the wheel speed sensor electrical connector (3).
14. Install the wheel speed sensor wiring harness (4) to the strut assembly bracket (2).



15. Connect the stabilizer bar link (1) to the strut assembly bracket (3).
16. Install the stabilizer bar link to the strut assembly bracket retaining nut (2) and tighten to **50 N·m (37 lb ft)**.
17. Install the front wheel. Refer to Tire and Wheel Removal and Installation.
18. Remove the safety stands.
19. Lower the vehicle to the ground.
20. Bounce the vehicle several times to settle the suspension.
21. Check and adjust the wheel alignment. Refer to Wheel Alignment Measurement in Wheel Alignment.



22. Install the strut assembly to the steering knuckle retaining bolts (2) and nuts (1) and tighten.
    - the nuts a first pass to **85 N·m (63 lb ft)**
    - the nuts a second pass to **100 N·m (74 lb ft)**
    - the nuts an additional 90 degrees

Wheel Stud Replacement

Special Tools

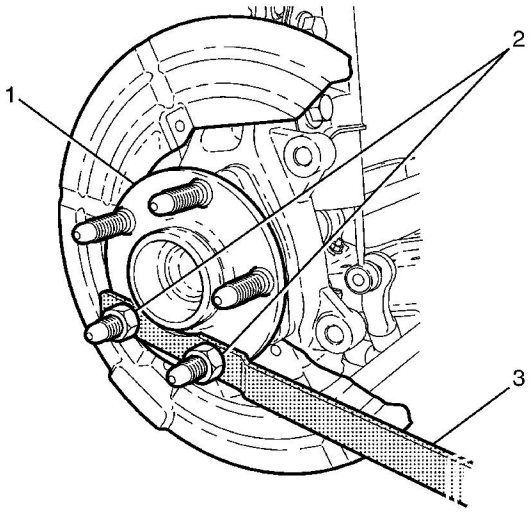
- C-4150-C Press Tool.
- KM-468 Holding Bar.

Removal Procedure

Warning: Refer to Safety Glasses Warning in the Preface section.

Danger: To avoid any vehicle damage, serious personal injury or death when major components are removed from the vehicle and the vehicle is supported by a hoist, support the vehicle with jack stands at the opposite end from which the components are being removed and strap the vehicle to the hoist.

1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the front wheel. Refer to Tire and Wheel Removal and Installation.
3. Remove the brake disc. Refer to Front Brake Rotor Replacement.



4. Attach the KM-468 (3), to the wheel hub (1) using two inverted wheel nuts (2).

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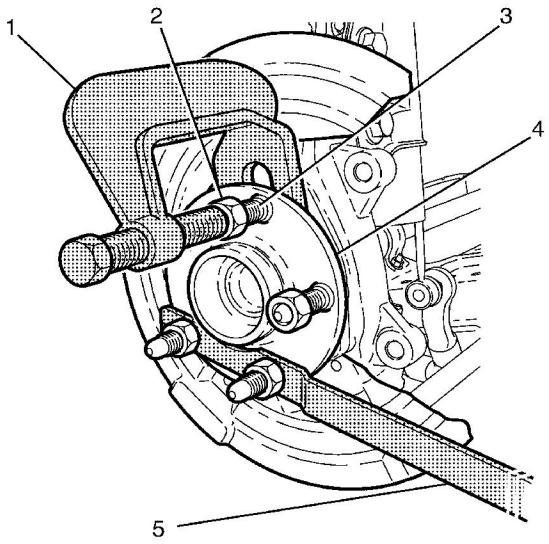
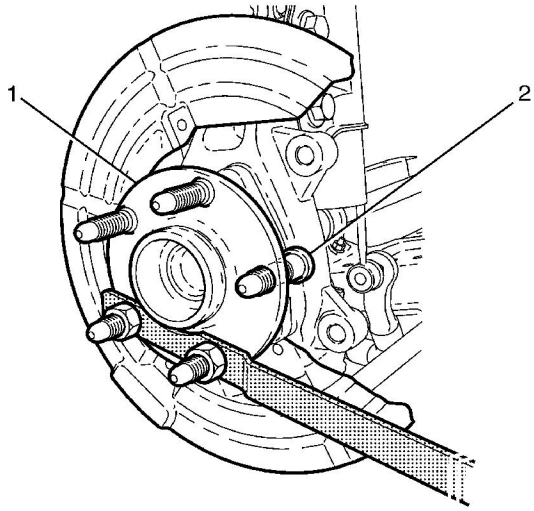
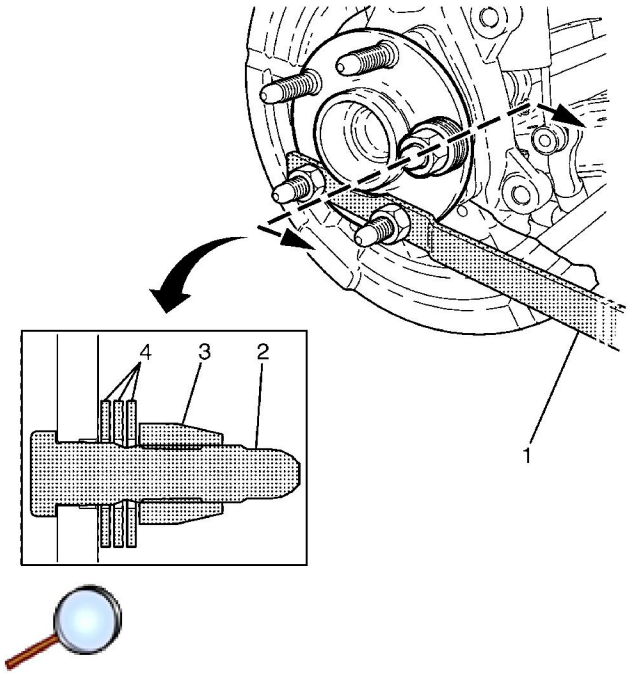


5. Install a wheel nut (2) flush with the end of the wheel stud (3).
6. Secure the KM-468 (5) and remove the wheel stud (3) from the wheel hub (4) using the C-4150-C (1).
7. Repeat steps 5 and 6 for any additional wheel studs that require replacement.

Installation Procedure



1. Install the replacement wheel stud (2) to the wheel hub flange (1).



Note: Suitable sized spacing washers (4) must be used to seat the wheel stud (2) fully.

2. Install spacing washers (4) and a inverted wheel nut (3) onto the replacement wheel stud (2).
3. Secure the KM-468 (1) and tighten the wheel nut (3) to pull the wheel stud (2) into place.
4. Remove the wheel nut (3) and spacing washers (4).
5. Repeat steps 1 to 4 for any additional studs that require replacement.
6. Remove the KM-468 (1).
7. Install the brake disc. Refer to Front Brake Rotor Replacement.
8. Install the front wheel. Refer to Tire and Wheel Removal and Installation.
9. Remove the safety stands.
10. Lower the vehicle to the ground.